

OPTIONS FOR DEVELOPING A NEW MID MICRON VALUE PROPOSITION FOR CONSUMERS

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ABSTRACT

The research for this thesis “Options for Developing a New Mid Micron Value Proposition for Consumers”, is a part of a larger “New Mid Micron Products” project initiated by Mid Micron New Zealand Inc with the key goal of turning the Mid Micron Sector into a more vibrant and profitable one. The motivation for the project can be found in the dramatic fall in demand for New Zealand Mid Micron wool over the past decade.

Two dominant causes for the fall in demand for Mid Micron wool were identified: the substandard skin comfort of final products made from Mid Micron wool, and a problem with the structure of the Mid Micron Sector. These problems are addressed in the “New Mid Micron Products” project that combines new product development and new marketing initiatives. Product development involved the use of new spinning technology to improve skin comfort quality and develop new products that are softer and prickle free. The aim is to extract more value for woolgrowers by having the wool converted into a higher value product. The new marketing initiatives, which were identified in this thesis research, Focusing On New Market Segments via E-Commerce and Reconfiguring The Value Chain, and concentrate on the operational issues of capturing the value from the newly developed Mid Micron products.

Taking into account the nature of the overall Mid Micron Project and type of developed products, this research identified the Operational Excellence and Product Leadership models as alternative routes to develop a new Mid Micron Value Proposition for consumers. Operational Excellence, and the associated Cost Leadership strategy, is a low capital investment option, while Product Leadership and the associated Differentiation strategy is a high capital investment option. The models’ principles and their elements, products, price and delivery to market, are evaluated in the context of the Mid Micron Business.

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1 INTRODUCTION

1.1 STATEMENT OF THE PROBLEM

This thesis research, “Options for Developing a New Mid Micron Value Proposition for Consumers”, has been undertaken as part of a larger “New Mid Micron Products” project. The project has been initiated by Mid Micron NZ Inc with the key goal of turning the Mid Micron Sector into a more vibrant and profitable one. The intention is to reach this objective by creating a new value proposition for consumers by combining a new product development with new marketing initiatives.

In the past, Mid Micron wool was highly utilized in a wide range of apparel goods. However, currently, the general outlook for Mid Micron wool is poor. A decline in the traditional markets for Mid Micron wool over the last decade has resulted in a dramatic fall in demand for New Zealand Mid Micron wool, and as a result, Mid Micron wool appears to be losing market share (McKinsey and Company, 2000). The residual consumer use in upholstery and clothing is shrinking so that Mid Micron wool now receives little or no price premium over crossbred strong wool used for carpet production.

Current opportunities in the market are not sufficient for the majority of Mid Micron woolgrowers to make profitable returns for their product. As a result, Mid Micron woolgrowers are themselves now facing up to the responsibility of looking to improve their returns from their product.

Once Mid Micron woolgrowers acknowledged the negative market response to products made from their wool and realized that considerable changes were needed to eliminate the growing uncertainties for their product, they established a company known as Woolgrowers Marketing Limited. It is intended that this company will stay in their direct ownership with the role of representing woolgrowers’ interests in new value proposition development. The company become involved in a product development project, in order to create the basis for a new value proposition for consumers.

The product development represents the technological aspect of the new value proposition, and was aimed at improving the potential to target a major consumer need for a softer and prickle free product. At the core of the product development is the exploitation of a new and unique spinning technology owned by NuYarn Corporation Limited. The postulated outcome is softer knitwear, due to the balanced character of self-twist yarns, and prickle reduced knitwear (Carnaby, 2006). This produces the equivalent skin comfort of products made from medium fine Merino wool.

1.2 RESEARCH OBJECTIVES

Developing new products that have greater appeal is a basis to create new value proposition for consumers. However, if this value is to be realised in the marketplace, then focus needs to be upon the marketing aspects of the value proposition. This is the focus of this research, therefore the research objectives are to:

- Identify options for developing a new Mid Micron Value Proposition for consumers as alternative business routes for capturing the value from newly developed Mid Micron products, and
- Compare alternative value proposition options so that the sources of value, potential investment required, and risks associated with each option can be clearly identified.

In the thesis, value proposition options are predominantly discussed with regard to type and characteristics of the initial Mid Micron product, Fisherman's Rib Jumper.

1.3 RESEARCH METHOD

The research method was to review literature on value proposition which was then used to develop an analytical framework that could be used to compare alternative value proposition options. The thesis includes analysis of the technology used to correct the problems associated with the Mid Micron product quality.

The analytical framework is used to outline the Mid Micron product development process in creating new value for consumers and describe the newly developed products, and the associated risks and opportunities. Further, the framework was used to identify different value proposition models, as they relate to the Mid Micron

Business, and to develop a template for their comparison. The thesis also used identified market leading companies, as examples of the existing products in the market, market prices, and strategic directions. The study of the two optional routes for the Mid Micron Business in capturing the value from newly developed products is completed by summarising all relevant features in a comparative table.

1.4 STRUCTURE OF THE THESIS

The research for this thesis is presented in six chapters, and the structure is dictated by the nature of the research problem. The specific nature of the problem required an analysis of the technological aspects prior to considering marketing strategies. The two elements of value were then combined.

Chapter 2 examines the problems that will be addressed in the thesis, and the place of Mid Micron wool in the textile industry. It examines the history of Mid Micron production, and identifies disadvantages and issues associated with Mid Micron wool when compared with competitors' products.

Chapter 3 describes the use of a new spinning technology to produce new Mid Micron products. It explains conventional spinning, self-twist spinning and its extension, SELFIL spinning, which are necessary to understand the technology applied to produce the new Mid Micron products and improve the products' quality and potential.

Chapter 4 is a literature review on new product development and alternative value propositions for consumers. This theory is then used to develop an analytical framework for the research.

Chapter 5 brings together the technology and the analytical framework presented in the previous chapters, in order to identify and compare Mid Micron Value Proposition options. It describes the Mid Micron product development, and alternative value proposition models, as they relate to the Mid Micron Business.

Chapter 6 summarizes the research findings. It discusses the results, limitations and contribution of the thesis.

2 THE POSITION OF MID MICRON WOOL IN THE TEXTILE INDUSTRY

2.1 INTRODUCTION

This chapter describes the position of Mid Micron wool in the textile industry, both in the past and at the present. It also identifies reasons why Mid Micron wool is currently facing difficulties in the market and explains why Mid Micron woolgrowers are facing up to the responsibility to champion their product through product development and new marketing initiatives. Mid Micron wool is defined in Section 2.2.

Section 2.3, The History Of Mid Micron Wool Production, discusses the key points and the circumstances that saw Mid Micron wool utilised in a wide range of apparel goods in the past, looks at the current use of Mid Micron wool and reviews the present market for Mid Micron wool. It also provides an insight into the current problems of the Mid Micron Sector.

Section 2.4, Disadvantages Of The Mid Micron Wool When Compared With Substitute Textiles, describes how clothing made from Mid Micron wool feels rougher and pricklier than clothing made from, for example, finer Merino wool or polyester, or a blend of the two. This problem became an issue after the introduction of man made fibres, which started a trend towards clothing with a soft touch.

Section 2.5, Primary Issues For Mid Micron Wool, continues examining the substandard skin comfort in terms of the handle properties and prickliness of the final products. The skin comfort problem is related to the loss of Mid Micron market share and explains the loss of customer base in the machine knitwear sector. High value products have become unavailable to Mid Micron woolgrowers who no longer receive a significant price premium over crossbred strong wool used in carpet production.

Section 2.6, The Structure Of The New Zealand Mid Micron Sector, describes the nature of the sector and some of the faults inside the traditional Mid Micron wool supply value chain. The chain displays complex structure, lack of customer focus, inefficient communication and unfocused marketing efforts.

2.2 DEFINITION OF MID MICRON WOOL

New Zealand wool can be divided into three broad categories based on the average diameter of the fibre: strong wool, with a mean diameter greater than 31 microns; Mid Micron wool, with a diameter in the range of 23 to 32 microns; and fine wool, with a mean diameter of less than 23 microns (McKinsey, 2000). Diameter is a measurement in micrometers (micron) of the average diameter of fibres in a sale lot. It is the principal factor in determining suitability of wool for end use products (Australian Wool Exchange, 2006.).

Fibre diameter is the single most important characteristic of greasy wool and has been responsible for between 70% and 80% of the variation in the relative price of wool over the long term (Australian Wool Exchange, 2006). In the wide diameter range of Mid Micron wool, the majority of the New Zealand Mid Micron clip is between 26 and 30 microns (New Zealand Wool Board, 2001).

A different classification based on the average diameter of the wool fibre value recognizes: fine wool (<24.5 microns), medium wool (24.5–31.4 micron), fine crossbred wool (31.5–35.4 microns) and coarse crossbred wool (>35.5 micron). In the 2003/2004 season, fine wool made up five percent of New Zealand wool export volume, 15 percent was medium wool, and 33 percent was fine crossbred wool. The remaining 47 percent was coarse crossbred wool (Market New Zealand.Com, n.d.). For the purpose of this thesis research, Mid Micron wool is defined as wool in the 24 to 32 micron range, and New Zealand Mid Micron clip is defined as wool in the 26 to 30 micron range.

2.3 HISTORY OF MID MICRON WOOL PRODUCTION

In order to place the problems for Mid Micron wool in context, this section firstly describes how Mid Micron wool production started, how the Mid Micron Sector developed and finally the key factors that contributed to the decline in Mid Micron wool use. Further, this section covers the current application of Mid Micron wool, showing how it is mainly dependent on fibre diameter, and the global production of Mid Micron wool, showing the current problems in the textile market.

2.3.1 MID MICRON WOOL - EMERGENCE, DEVELOPMENT, DECLINE

The New Zealand sheep industry began with the establishment of the first Merino's flocks in the 1830s, and since then sheep farming patterns have changed and a variety of breeds are farmed to suit the conditions and world demand for sheep products (Canesis Network Limited, 2006). New Zealand is the world's largest producer and exporter of strong crossbred wool, and is second only to Australia in the production and export of all wool (Market New Zealand.Com, n.d.). Knowing this, it is evident how the wool industry developed into a critical industry for New Zealand and historically one of the mainstays of the country's economy.

Meadows (1997) explained how New Zealand Mid Micron wool production grew in line with the development of the export meat industry when New Zealand farmers started a search for a dual-purpose sheep. Crossbreeding was focused on making a sheep with meat and wool of a quality halfway between the contributing breeds. Meadows (1997) described Corriedale as the first indigenous Mid Micron breed registered in 1906, that comes from a fine-wool Merino and long-wool English Leicester or Lincoln rams. Its wool can be described as medium to fine, long-stapled with a well defined lock and pronounced and even staple crimp. Halfbred sheep were developed in New Zealand during the 19th century through the crossing of Merino with other long-wool breeds: English Leicester, Lincoln and Romney. Other Mid Micron breeds include: Polwarth, Quarter-Bred and associated breeds (Meadows, 1997).

This innovation of New Zealand's farmers marked the beginning of Mid Micron wool production in New Zealand. Several reasons contributed to sector growth.

The first reason for the sector's growth is to be found in 1850, when mechanised wool processing was established and factories in Europe needed large quantities of wool. Two main worsted processing systems were the Bradford worsted system, used in Britain, and the Continental worsted system, used in Europe and USA (Carnaby, 2005a). The Continental system was typically used for processing finer and shorter wool, while the Bradford worsted system more effectively used Corriedale's and Romney's longer and coarser wool to produce very compact and sleek yarns. At that time every effort was made to find a way to make wool fibre into clothing, no matter how coarse the fibre was (Carnaby, 2005b) New Zealand Mid Micron woolgrowers had no problem in exporting all the wool they produced for a satisfactory price.

Further impetus for sector growth came around 1950 when wool prices reached their all time peak and supply could not keep up with demand (Carter and MacGibbon, 2003). Carnaby (2005b) commented on two events that influenced 'peak wool'. The first one was the Korean War when America wanted all the wool (especially Mid Micron wool) for their military stockpiles to deny it to Russia. Mid Micron was used for the heavy worsted battledress, greatcoat and blankets of foot soldiers. The second event was the new fashion trend and popularity of wall-to-wall carpets. More and more coarser wool previously used for clothing was being utilised in carpet production. Mid Micron wool was also used for the serge suiting, that was the mainstay of the daily clothing of the 'working class'; in hand knitting yarns; and in machine knitted garments. Consumers put up with garments that felt 'a little bit prickly' as long they were warm.

Soon after the time of 'peak wool', major efforts were focused on promotion to secure a position for wool as a luxury fibre at the top of the market. Those efforts resulted in the establishment of Woolmark, charged with promoting wool and supporting wool research worldwide (Carter and MacGibbon, 2003).

The situation in the textile market and demand for wool started to change with the introduction of synthetics. Nylon was discovered in the 1930s and polyesters and acrylics were introduced a decade later. After the 1950s, big producers of synthetic materials joined a massive investment to commercialise man-made fibres as textile alternatives to wool (Carnaby, 2005b). Polyester had a strong impact in the woven sector and become a direct competitor to Mid Micron wool through blending with Merino. Merino/polyester blend fabrics were a superior alternative to the more expensive pure Merino fabrics than were fabrics made from cheaper but prickly coarser wool. Acrylic fibres become important in knitwear (Garth Carnaby, G.A Carnaby and Associates Limited, Personal communication, June 2006).

Further problems for the Mid Micron Sector arose when the market collapsed due to stockpiles of wool in the 1990's (Carter and MacGibbon, 2003). Growers blamed this on the failure of Woolmark's generic promotion. Funding for Woolmark was withdrawn and the lack of focused promotion has aggravated the competition from alternatives to wool (Carnaby, 2005b). The impact of this was not as strong for fine wool. Fine wool with its soft handle and other properties managed to keep its position in the up market segment being used for men's suits, ladies wear, and knitwear. However, more adversely affected with competition from the new fibres, Mid Micron wool has been a much more serious casualty.

As a result, Mid Micron wool has lost market share. The residual consumer use in upholstery and clothing is shrinking so that it now receives little or no price premium over crossbred strong wool used for carpet production. The majority of Mid Micron wool is sold in large parcels of wool to the big Chinese mills specialising in converting it into hand knitting yarn (Carnaby, 2005b). Without the wool industry structures and bodies of the past, Mid Micron woolgrowers are now facing up to the responsibility to look themselves for a way to create a sustainable competitive advantage for their product in the market.

2.3.2 CURRENT USE OF MID MICRON WOOL

Although the general outlook for Mid Micron wool is poor, the demand for Mid Micron wool still exists in different segments of the apparel industry than in the past. Currently, Mid Micron wool is mostly used in price sensitive volume markets such as knitwear and lower to mid priced men's and women's woven wear. Survival in this intensely competitive environment is conditioned by the price relativities between the competing fibres (Woolmark Business Intelligence, 2005).

In February 2001 the major products identified for finer wool in the micron range between 20 and 25 were:

- Knitwear-worsted, lambs-wool sweaters and socks (35%)
- Jackets, suits, trousers and coats for women (32%)
- Suits, trousers, jackets and coats for men (30%)

Major products for Mid Micron wool in the micron range between 26 and 30 were:

- Knitwear – hand knitting yarn for China, Military and Shetland knitwear (40%)
- Men's and Women's wear – jackets and outer coats (40%)
- Interior textiles – rugs, bedding and upholstery (20%)

(Woolmark Business Intelligence, 2005, P17-18)

Mid Micron Wool New Zealand Inc. (n.d.) noted the additional end uses for Mid Micron wools. They include fashion garments and socks, home and commercial furnishings, blankets, and specialty carpets. Mid Micron wools are utilised in furnishings due to their ability to withstand prolonged wear, especially for commercial contract applications, as in automobiles and commercial transport. More limited volumes are used in office and home upholstery. The use of Mid Micron wools in carpets is not in large quantities, except where some 'softness' is required, and in areas where a totally soft carpet is required as in the trend towards soft bedroom carpet. In drapes and curtains, Mid Micron wools have superior 'hang' but are not often used because of the poor photo stability of wool when exposed to sunlight behind glass.

Analysis of the current use of Mid Micron wool showed that Mid Micron wool is a valuable product with many different end use applications dependent mainly on fibre diameter. Flexibility and versatility of the fibre is a result of the wide micron range, but the same factor can be defined as a disadvantage since it has caused a complex marketing structure and unspecified, one use for Mid Micron wool.

2.3.3 GLOBAL MID MICRON WOOL PRODUCTION

Woolmark (2005) has identified the strongest world producers of Mid Micron wool and direct competitors for New Zealand to be Australia, South Africa, Uruguay, Argentina and China. Australia is considered to be the primary competitor with approximately 65% of global Mid Micron wool production, and New Zealand produces approximately 22%, followed by Uruguay, South Africa and Argentina. The main reasons for Australia to be the strongest Mid Micron wool producer are: strong export ties with the dominant markets, the availability of large volumes, and the capacity for stable supply to customers throughout the world. The trend for Australia to move towards meat production will probably increase Mid Micron production at the expense of Merinos (Garth Carnaby, G.A Carnaby and Associates Limited, Personal communication, June 2006).

All of the world's Mid Micron producers have recorded a decline in production since the early 1990s which is attributed to several reasons, such as unfavourable exchange rates, high oil price, relatively low cotton prices, and the continuous decline of Mid Micron wool prices in US dollar terms (Woolmark Business Intelligence, 2005). However, the number one cause influencing the fall in demand for Mid Micron wool is most likely to be that the final products made from Mid Micron wool feel rougher and pricklier compared to fine wools or man made fibres. New Zealand Mid Micron woolgrowers have also acknowledged that contributing factors are an ineffective structure of the supply value chain and a marketing failure problem. These issues are explored in following sections.

2.4 DISADVANTAGES OF MID MICRON WOOL WHEN COMPARED WITH SUBSTITUTE TEXTILES

The primary issue for Mid Micron wool is the substandard skin comfort of the final products. In order to understand this, it is important to discuss substitute textiles that have triggered a long-term trend toward clothing with a soft touch. Synthetic fibres pulled consumers away from wool in general due to their advantages over wool. In the case of Mid Micron wool, the most significant competitor was polyester.

The skin comfort problem of Mid Micron products is the result of the handle and prickle properties associated with Mid Micron wool fibre. Both sensations are closely related to fibre diameter and simply mean that Mid Micron products can irritate the skin and consequently make high value products unavailable to the Mid Micron woolgrowers. If this could be overcome the market opportunity would be improved.

2.4.1 SUBSTITUTE TEXTILES

Up until the time of ‘peak wool’, no fibre in the textile market was as important and valuable as wool, demand for wool was high and the produced volume was always utilized. Mitchell (2003) noted that the volume of wool used today is showing extensive decline, with sheep numbers and the quantity of wool produced at their lowest levels in over 50 years. At the same time the world market for textiles has continued to grow. The result has been a decline in market share for wool by more than 50% in the last 30 years.

One of the main reasons for the decline in wool’s share of the textile market was the introduction of alternative textile solutions. Weston Thomas (n.d.) examined synthetic fibres developed in the 1930s and 1940s, and that came into general use in the 1950s. Polyamide (Nylon), Polyester, Polyacrylonitriles (Acrylics), Polyolefins and Polyurethanes (Spandex, and Lycra) became popular in the 1950s and 1960s. Later combinations with natural fibres such as wool or cotton introduced the consumer to the concept of easy care fibre blends with a natural feel and competed directly with clothing made from 100% wool (Weston Thomas, n.d.).

Weston Thomas (n.d) analysed further fabric improvements. They resulted in the creation of garments with great comfort and better shape retention in wear using blends of Spandex or Lycra with fibres like viscose and acetate. Chemists concentrated on improving man made fibres and by the 1980s new variations which produced luxury look fabrics hit the marketplace, for example microfibres. These made a big difference in upholstery and furnishing as well as numerous high performance fabrics, like Gore Tex, Activent, Ecolite and Tactel, that overtook the sportswear segment and outdoor recreational clothing segment.

In summary, man made fibres pulled consumers away from wool in general due to disadvantages of wool with respect to man made fibres. In the case of Mid Micron wool, the most significant competitor was polyester.

2.4.2 POLYESTER AS ALTERNATIVE TO MID MICRON WOOL

Polyester was introduced in the textile market in the 1940s (Weston Thomas, n.d.). It was mostly used blended with wool for wovens and as a fill for bedding and quilted products. Polyester soon became the leading fibre in the production of warm garments through blending with Merino wool (Garth Carnaby, G.A Carnaby and Associates Limited, Personal communication, July 2006). A Merino/Polyester blend is a better lower priced alternative to 100% Merino than 100% Mid Micron because it does not prickle. Consumers quickly accepted it as an alternative to wool, attracted to its value for money. Products made from polyester are warm, soft, easy-care and reasonably priced.

Polyester (as well as cotton) has some distinct advantages in production over the production of wool summarized by Champion and Fearne (2001). They outlined the most significant differences to be: the time from wool harvesting (shearing) to availability at retail which may be up to 2 years; that wool is expensive and more difficult to process, and as a result typically maintains a 3.5:1 price premium; and that wool has smaller market share. By comparison, cotton represents approximately 45% of the world textile trade, and polyester represents approximately 35%.

Champion and Fearne (2001) also discussed wool and cotton as the two natural fibres. The production environment for cotton is more controlled with lower expenses that have significant cost implications. Also, polyester (and other synthetics) have no environmental variability impacting on their production and hence quality, while wool production is dispersed with respect to its production units and the links between producers and processors (Champion and Fearne, 2001).

Polyester fill products took over from heavy wool woven cloths, for example duvets from blankets and quilted jackets from coats. More recently micro fibre polyester has taken further share via knitted pile fabrics (polar fleece), for example knitted jumpers and sport coats or blazers (Garth Carnaby, G.A Carnaby and Associates Limited, Personal communication, July 2006).

The implication for Mid Micron wool was that polyester pushed consumer expectations to a higher level. There was no reason to accept poorer quality coarse woollen garments any more. Furthermore, clothes made from wool blended with synthetic fibres performed better than clothes made purely from wool. Products made from Mid Micron wool seem to be as warm and light as polyester, but pricklier; as natural as cotton, but more expensive; high performing, but unable to meet the top performance of man made fabrics. The result is a decrease in demand for Mid Micron wool and a shrinking of the customer base in the apparel segment.

Even though there is a general trend of valuing the ‘green image’ and naturalness of products, most consumers, especially among the young generation, feel no connection with wool. They are ready to accept only the best performing quality products that textile producers have on offer.

2.5 PRIMARY ISSUES OF MID MICRON WOOL - THE HANDLE AND PRICKLE PROBLEM

The previous section explained how the introduction and commercialization of man made fibres triggered a long-term trend toward clothing with a soft touch. This has highlighted the softness and skin comfort as the key measures of a fabric's value. That trend underlined the prime issue for Mid Micron wool, the handle and prickle problem of the finished product.

2.5.1 HANDLE PROBLEM

The subject of handle has been one of the most important research topics in textile physics. Pierce (1930) made a significant contribution in understanding the 'handle' of cloth. Pierce found that handle describes how stiff or limp, hard or soft, rough or smooth the fabric is, and is a measurable quantity determined by the bending stiffness of a cloth.

Measuring the stiffness of the fabrics was the research subject of many scientists in the past. Kawabata (1982) was the first to show how to predict handle using a suite of new commercial instruments and identified terms of subjectively assessed handle. This contributed to the setting up of a common language to discuss fabric properties in the technical and commercial fields of textiles. Predictive equations were developed in which the independent variables were the tensile, bending and shear parameters, the lateral compression properties and the measured surface roughness.

In spite of the new findings relating to handle, the key parameter to assess fabric handle remained the bending rigidity of the fabric. Considering that the stiffness of a fabric is dependent mainly on the stiffness of its constituent fibres, moderated by the degree of frictional interaction between them, means that stiffness of Mid Micron fabric is related directly to fibre stiffness which in turn is determined by fibre diameter (Carnaby, 2006).

Diameter is a measurement in micrometers (micron) of the average diameter of fibres in a sale lot (Canesis Network Limited, 2006). It is important to recognize that the micron result for a wool sample is the mean micron. Wool of 28 microns will

typically contain fibres ranging from 15 to 45 microns (Carnaby, 2006). The fibre diameter is the main factor that determines suitability of wool for end use products. This is because fibre rigidity is proportional to the fourth power of the fibre diameter. This means if we double the diameter, the stiffness of the fibre increases sixteen fold, and this sixteen fold increase is reflected directly in the stiffness and hence the deterioration in the softness of the resulting handle of any fabric made from it (Carnaby, 2006).

When this powerful influence of diameter is understood, it is obvious why Mid Micron wool is lower priced with respect to Merino wool. Merino wool, with a diameter between 17 and 24 microns, sets the standard for the acceptable fabric handle.

2.5.2 PRICKLE SENSATION

Another issue determined by fibre diameter and closely related to handle, is the prickle factor. Research on the comfort of wool fabrics worn close to the skin has shown that fibre ends protruding from the surface of a fabric can trigger nerve endings just below the skin surface, providing an irritating sensation (Garnsworthy, Mayfield, Gully, Westerman and Kenins, 1985).

Garnsworthy et al. (1985) discovered that the prickle sensation on human skin of a wool fabric is a result of protruding fibre ends capable of bearing loads of approximately 100mg and that the prime causes for prickle in wool are individual fibres with a diameter value over 30 microns. In order to increase a skin comfort, it is possible to decrease the number of irritant fibres. This implies that to avoid prickle altogether, fine wool must be chosen with a mean diameter well below 30 microns, for example, 20 microns or less. This explains the prickliness of products made from Mid Micron wool that has a mean diameter between 24 and 32 microns, with the majority of the New Zealand Mid Micron clip being between 26 and 32 microns.

Besides the mean fibre diameter and the proportion of coarse fibres in the material, Hoschke (1995) added other factors which may affect fabric prickliness. They are the fabric finishing treatment and its affect on interfibre friction and hence the stiffness of the fabric. The prickle sensation is not associated with wool specifically but with any

fibre that can exert sufficient pressure on the skin. The degree of discomfort also depends on the yarn and fabric construction, the techniques used to finish the fabric, and the sensitivity of the subject (De Boss, Naylor, Slota & Stanton, n.d). In order to create a final Mid Micron product with a good next to skin feel, research had to focus on how to reduce the prickle of fabrics for fibres of 24 to 32 microns.

2.5.3 THE FAILURE OF MID MICRON WOOL IN THE MARKETPLACE

The unsatisfactory skin comfort of products made from Mid Micron wool had a strong influence on the demand for Mid Micron wool in the current market (McKinsey, 2000). The shrinkage of the traditional customer base, and unavailability of new customers and high value products, has endangered Mid Micron's standing in the apparel industry.

The traditional demand for Mid Micron wool was specifically affected by a change in the standard of yarn used in the machine knitwear sector. Today, machine made knitwear is typically made with finer wools, in the 22-26 micron range, so wool of 28 microns is not as acceptable as in the past (Garth Carnaby, G.A Carnaby and Associates Limited, Personal communication, July 2006). Since only the finest Mid Micron wools in the New Zealand Mid Micron clip are below 26 microns, it follows that Mid Micron wool is losing its customer base in the machine knitwear sector. Basic Mid Micron wool items are being traded up for sophisticated items and items of higher quality made of finer wool and other luxury fibres.

New Zealand Wool Board (2001, P 6) noted that in the season 1999/2000 New Zealand Mid Micron wool was exported to 38 countries providing over NZ\$135 million in export earnings. Much of the wool was exported to discount destinations (China, Indian Sub-Continent, and South America) with less focus on premium price purchasers (Europe, specifically Germany, Japan, and USA). This is partly indicative of the relocation of the processing sector to lower cost centres of production, but it also indicates a need to create a stable supply to customers and to create stronger export ties with the premium markets in the world.

Currently, a lot of New Zealand Mid Micron wool is sold by the trade to the large hand knitting mills in China. In the season 1999/2000, China bought nearly 35% of the total export volume (New Zealand Wool Board, 2001, P 7). However, even the Chinese market is not as safe as it used to be. The Chinese market changed when China entered the World Trade Organization because new brand retail chains increased their presence and changed retail formats in China. Department stores have allocated more floor space to new retailers by reducing the floor space of the traditional manufacturers and retailers, especially in the knitwear sector (Woolmark Business Intelligence, 2005, P 18). Knitwear sales are under pressure, directly affecting demand for Mid Micron wool.

Loss of the Chinese knitwear market would leave very few options for Mid Micron woolgrowers. Mid Micron wool would have to be used in carpet production at the carpet wool prices. Mid Micron wool now receives little or no price premium over crossbred strong wool used for carpet production, so perhaps this prospect is already upon the industry.

The way to rebuild the consumption in the apparel market is to meet more demanding customer needs through innovation and research into wool processing. If Mid Micron wool producers manage to create a final product displaying an excellent handle, the many inherent positives of Mid Micron wool would earn back consumer appreciation. Mid Micron woolgrowers could prosper again if they could re-establish the traditional use of Mid Micron wool in upholstery and clothing, and establish a new customer base, as well.

A possible solution is to use new technology to reduce the prickliness for the fabric of a given micron and to develop a superior and technologically differentiated yarn with improved aesthetics. This may enable woolgrowers to extract more value by having the wool converted into a higher value product.

The use of new technology and a research plan to produce products with a softer handle is the subject of the Chapter 3 in this thesis. The research plan was developed as part of a broader “New Mid Micron Products” project, and is carefully designed to disguise the Mid Micron fibre diameter effect.

2.6 STRUCTURE OF THE NEW ZEALAND MID MICRON SECTOR AND SUPPLY VALUE CHAIN PROBLEM

The previous section explained how final product quality is the prime issue for Mid Micron wool. However, a secondary problem also exists within the New Zealand Mid Micron Sector and is associated with the Mid Micron supply value chain structure.

Wool growing is the first step in a long apparel wool supply chain that is more complex than for any other agricultural product. A typical wool supply chain involves: Woolgrowers - Shearers and Classers - Wool Brokers - Wool Scourers - Spinners - Weavers, Knitters or Carpet Manufacturers - Retailers - Consumers (Canesis Network Limited, 2006).

For Mid Micron woolgrowers, the traditional supply value chain structure means that their wool makes up a small proportion of the final product value due to the many steps required to make a finished product. An example is that the wool used for high end apparel such as suits, makes only 2% of the final value (the retail price), so most of the product's final value is created by manufacturers of the fabric, and the clothing companies that carry branding and retailers (McKinsey, 2000).

Champion and Fearne (2001) examined the complexity of the wool production process, and the many players involved in different transformation stages. They argued that there is a certain communication vacuum between woolgrowers and their downstream consumers and without an efficient information flow among all players and on all levels in the chain, it is difficult to respond to consumer needs.

Another problem is related to the availability of wool which fluctuates significantly due to shearing dates and on-farm practices. Using the New Zealand Wool Board (2001) report for season 1999/2000, the clip availability shows that some 20% of Mid Micron auction wool passed through the system in September alone, and just over half of the Mid Micron auction wool was sold in only four months. Only 2.5% of the clip was then being offered at auction in the months of March and April. The fluctuating availability illustrates the major supply and demand mismatch that exists between production and customer needs.

New Zealand Wool Board (2001, P 3) noted that in the season 1999/2000, the majority of the Mid Micron clip (around 70%) was sold through the New Zealand wool auction system. Ninety three percent of the auctioned wool was from Halfbred and Corriedale sheep, and Quarterbred and Polwarth breeds provided 5% and 2% of the auctioned volume respectively.

Champion et al. (2001) argues that the auctioning system for wool is one of the causes for the lack of consumer focus in the wool supply value chain. Growers prepare wool for auction without knowing the identity of their consumers and so cannot seek to meet specific market or customer specifications. They suggested that the dominance of the auction system also means that wool is channelled through a small number of brokers, exporters and top makers which leaves not many options for woolgrowers to choose how to sell and prepare their product. Auctioning also adds extra costs associated with the broker's storage of the wool and running the auction. The positives of the auction system are ensuring competition and setting a public market price, as well as providing a simple and open method for buyers and sellers to transact with one another. For the buyer, the auction gives confidence in the quality of wool purchased, a guarantee of the integrity of the contract and the timing of delivery. An alternative option involves changing the traditional structure and delivering wool directly to the mill rather than via a broker.

2.7 CONCLUSION

In this chapter, the current position of New Zealand Mid Micron wool was assessed against its position in the past. The chapter aimed to describe the fall in demand for the Mid Micron wool and customer base shrinkage, which have influenced the loss of Mid Micron market share over the past decades.

Because of their ‘value for money’, synthetic fibres, especially polyester, pulled consumers away from wool in general. The endangered Mid Micron position was further aggravated when synthetics combined with natural fibres such as wool or cotton to introduce the concept of easy care fibre blends with a natural feel. Although Mid Micron wool as a flexible and versatile fibre has potential for many different end uses, the increased consumer expectations resulted in significant decline of traditional markets, particularly in machine knitting, and the unavailability of high value products.

The causes associated with declining demand for Mid Micron wool are substandard skin comfort, which is seen as a key measure of fabric value, and the inefficiencies of the Mid Micron Sector. Substandard skin comfort is related to the unsatisfactory handle and prickliness of the final Mid Micron products, which are associated with the mean diameter of Mid Micron wool.

In order to improve opportunities and returns on their wool, and extract more value by having the wool converted into a higher value product, Mid Micron woolgrowers initiated the ‘New Mid Micron Products’ project. The project combines product development and new marketing initiatives. Product development is based on the exploitation of a new spinning technology to create a superior and technologically differentiated Mid Micron yarn, and consequently, a final product made from Mid Micron wool with a good next to skin feel and reduced prickliness. This technology solution is the subject of Chapter 3 in this thesis.

3 THE USE OF NEW SPINNING TECHNOLOGY TO PRODUCE NEW MID MICRON PRODUCTS

3.1 INTRODUCTION

The beginning of Mid Micron wool production can be attributed to the creativity of New Zealand farmers in their search for a dual purpose sheep breed. This chapter aims to outline a new creative solution that is assisting a new opportunity in Mid Micron wool production. The focus is on the skin comfort problem associated with Mid Micron wool, and the new technology in the quality correction process. When this technical problem is solved, it is possible to look how to further improve the position of Mid Micron wool in the textile market through various marketing and management initiatives.

The new technology is designed by NuYarn Corporation Limited and results in a technologically differentiated yarn with improved aesthetics that when used in knitwear achieves an apparent micron shift effect of 4-5 microns. NuYarn's apparent micron shift technology brings together self-twist spinning and the use of continuous filaments.

Section 3.2, Spinning Technology, covers an analysis of research previously undertaken and defines spinning as a process in wool processing. It outlines the differences for different spinning systems and different spinning frames. It defines and explains ring spinning, which is a dominant spinning system use today, to allow comparison with self-twist spinning.

Section 3.3, Development Of Self-twist Spinning, covers the principles and the physics of self-twist spinning, and the machines used in the process. This section outlines advantages and limitations of the self-twist method when compared with conventional spinning.

Section 3.4, The 'New' Concept In Yarns For Knitting, describes a concept for the use of filaments in the production of knitting yarns. This concept, SELFIL, represented a further development of the self-twist method that could be used as a parallel process for the spinning of yarns for knitting. The SELFIL concept failed when it was

introduced in the 1970's, but is crucial for the Mid Micron product development exercise.

Section 3.5, Apparent Micron Shift Technology, describes NuYarn's technology solution to reduce the prickle of fabrics for fibres of a given micron and significantly improve next to skin feel. As NuYarn's technology is private and secret intellectual property, this section outlines only the principles of the method.

Section 3.6, Product Development Research Plan, outlines a research plan, designed by G. A. Carnaby and Associates Limited, based around the production of two initial products: Fisherman's Rib Jumpers and Men's Socks. Also this section outlines the results after optimization and comfort benefits testing of the new Mid Micron knitwear.

3.2 SPINNING TECHNOLOGY

This section covers previously undertaken research that shows how it might be possible to achieve softness and relative freedom from prickle even with wool of fibre diameter over 29 microns. This would be achieved through the use of appropriate fibre and yarn engineering.

This previous research resulted in setting up the hypothesis that Mid Micron wool could be used in modern clothing provided the appropriate technology is used. To achieve this, the hypothesis will be tested using NuYarn's spinning solution. In order to understand NuYarn's advanced spinning engineering, this section also covers wool processing and defines the conventional spinning process. The search for knowledge, needed to understand an apparent micron shift technology, followed the ideas and guides of the Mid Micron Product Development Research Plan (Carnaby 2006), developed by G.A. Carnaby and Associates Limited.

3.2.1 PREVIOUS RESEARCH

Previous research on how to disguise the fibre diameter effect was carried out on Sir Titus Salt's alpaca and cotton cloths which contain alpaca fibres mostly in the region of 29 microns. Sir Titus Salt was a very influential wool baron during the Industrial Revolution and the first person to perfect the manufacture of alpaca clothing using mechanized processes (Mid Micron NZ Inc, 2005). Fabrics were re-discovered in an 1853 catalogue at the Bradford Industrial Museum and it was postulated that their excellent handle and relative freedom from prickle was achieved by careful design to avoid the protrusion of the fibre ends at right angles to the cloth (Garth Carnaby, G.A Carnaby and Associates Limited, Personal communication, January 2006). The alpaca was most likely processed on a flyer spinning frame with minimal twist to avoid a wild hairy surface to the yarn and was used only in the weft. The flyer bobbins could be mounted directly into the shuttles to avoid any brushing up of hairs during rewinding. The fabrics were under set in the warp, to avoid crimping the much stiffer weft threads, which as a result lay like straight rods with the fine cotton warp bent to accommodate them (Mid Micron NZ Inc, 2005). The formula for bending cantilevers shows that the force needed to bend a protruding hair lying parallel to the fabric, like a cantilever, is up to 4 times less than the force needed to buckle the hair if it behaves

like an Euler column (Carnaby, 2006). The longer the hair, the easier it is to bend it, and the effective bending length of the hair can be increased by its lying in a near twist-less parallel bundle. This explains the softness of Sir Titus's cloths and implies that with the correct engineering of New Zealand Mid Micron wool it may be possible to produce products displaying improved handle and reduced prickliness (Mid Micron NZ Inc, 2005).

3.2.2 WOOL PROCESSING

This section describes the steps in wool processing and defines spinning as a method of forming a yarn of a certain thickness and amount of twist. A brief description of Worsted and Woollen spinning systems explains the differences between the systems and end use applications for worsted and woollen yarns. This is followed by a description of the different types of spinning frames: flyer, cap, ring and mule. Ring spinning is shown in more detail since the method is the dominant system used today amongst all spinners of yarn.

3.2.2.1 Spinning As A Step In Wool Processing

Yarn production starts with wool growing on farms and proceeds into a complex processing system that involves many different players and many different transformation stages. In the processing as described by Australian Wool Services (n.d.), the wool is scoured to wash out the grease and dust, and then carded, where rollers with teeth are used to separate the staples of wool and to lay the fibres nearly parallel, forming a soft rope called a sliver. Combing a sliver produces a top by separating the short from the long fibres, removing the hooks introduced by carding, and ensuring that the long fibres are laid parallel. In drawing, several tops are drawn out into the thickness of one, to thoroughly blend the wool and ensure the evenness or regularity of the resulting roving. Finisher drawing is used to reduce the roving thickness in order to suit the spinning operation and further improve evenness. The final step in the yarn production is spinning.

Spinning is defined as a process of forming a yarn of the required thickness and number of turns of twist per inch (Canesis Network Limited, 2006). The importance of spinning for this research is clear when considering that it represents around half

the total cost of converting wool into a fabric (Carnaby, 2006) and that it is fundamental step with regard to Mid Micron product development exercise (Mid Micron, 2005).

Wool yarn is specified by thickness, which is more commonly described by linear density or count, and by the amount of twist the yarn contains (Canesis Network Limited, 2006). The linear density is often measured with the TEX unit and equals mass in grams per kilometre of yarn length (Canesis Network Limited, 2006), and the amount of twist is measured by the number of twists per unit of length and determines what end use the yarn is suitable for (Brearley and Iredale, 1980, P 113).

Twist is inserted into the yarn to achieve the strength of the finished yarn (Australian Wool Services Limited, n.d.) and may have S or Z direction according to the diagonal direction in which the fibres line up when the yarn is held vertically (Canesis Network Limited, 2006). Stronger and firmer yarns have higher twist, and softer yarns with a bulky handle have a lower level of twist (Canesis Network Limited, 2006).

3.2.2.2 Worsted And Woollen Spinning System

Australian Wool (n.d.) noted significant differences between two dominant spinning systems, the Worsted and the Woollen systems. The Worsted spinning system is used to produce yarn from medium or longer wools, from 6 to 18 centimetres, and other fibres. These yarns are compact, smooth and more even and stronger than similar yarns spun using the Woollen system. Worsted fabrics are often more expensive due to the longer processing line from fleece to resultant yarn. Worsted fabric wears better than a woollen spun fabric of equivalent weave construction and fabric weight and are used for trousers, suits, other garments and upholstery fabrics where a smooth finish is required (Australian Wool Services Limited, n.d.).

In the Woollen spinning system, fibre is carded, but not combed, and passed through condensers which separate the web into strands of pre-determined weight called slubbing. Spinning frames draw these slubbing out to the required fineness of yarn and insert twist to form the yarn (Australian Wool Services Limited, n.d.).

Worsted spun yarns are mainly used in high quality woven suiting fabrics, and hand and machine knitting (Canesis Network Limited, 2006). The Mid Micron Product Development Project intends to develop yarns for these applications and will therefore be based on the Worsted System.

3.2.2.3 Types Of Spinning Frames

Brearley and Iredale (1980, P 94) noted four main spinning frames used in the past: flyer, cap, ring and mule. Frames differed from each other on the method of twisting and winding yarns on to the bobbin. The Bradford worsted spinning system typically used a flyer, cap or ring spinning frame; and the Continental spinning system for worsted yarns used a worsted mule or ring frame. At present the worsted mule is no longer in use; cap spinning is limited to a few specialist spinners mostly used for fine yarns; flyer spinning is used only infrequently for coarse count yarns as used for hand knitting, and the ring frame is widely used for all types and counts of yarn.

Brearley and Iredale (1980, P 96-102) noted that cap, flyer and ring frames all have similar frame construction and all use a roller drafting principle. The point of difference is the arrangement for twisting and winding which results in different yarn structures. Cap spinning was usually restricted for merino and very fine crossbred wool, with coarser wool producing lower quality yarn. The flyer frame effectively used long wool, alpaca and mohair for production of smooth yarn of a clear and 'round' surface. Ring spinning was designed to produce greater output and smoother yarn than the flyer frame and has developed into the dominant spinning technology used by textile manufacturers. Ring spinning is described in more detail in the following section.

3.2.2.4 Ring Spinning

Bradmill (n.d.) described ring spinning as a process that involves feeding the roving into a system of drafting rollers which thin out the fibre stream before it is twisted and wound onto a package (bobbin). The spindle on which the bobbin sits rotates very quickly as it must insert the twist, as well as wind on the yarn. The twist is inserted along the length of yarn between the last pair of drafting rollers (the delivery rollers) and the point at which it touches the bobbin. To help in this, the yarn is threaded

through a traveller (of a weight related to the TEX of the yarn) which, plus the yarn, balloon around the restraining ring. The ring frame is used for wool, man made fibres or a blend of the two. Ring spun yarns are suitable for the weaving and knitting industries (Brearley and Iredale, 1980 P 97).

The current popularity of ring spinning amongst all spinners of long staple yarns is a result of the continuous improvement of ring spinning frames in the past. Improvement usually resulted in either improved spinning efficiency, through an increase in the size of the package, or improved spinning productivity, through an increase of the acceptable spinning speed (Brearley and Iredale, 1980, P 98).

However, ring spinning has its drawbacks. Henshaw (1969) described the limitation related to the production rate which is determined by the need to rotate an output package at the rate at which the twist is inserted. This means that the production rate is limited by the traveller speed on the ring. Carnaby (2006) explained that an increase of the traveller speed above this limit intensifies centrifugal forces acting normal to the traveller's direction. Consequently the frictional force opposing the traveller's trajectory around the ring increases in proportion causing the travellers to burn out.

Studying the twist factor calculation, Carnaby (2006) noted that ring spinning of worsted yarns typically has a linear production rate of 15 m/min and described how the linear productivity reduces in proportion to the square root of the linear density of the yarn. This is because finer, thinner yarns need more turns of twist per metre causing a lower linear productivity. Finer yarns in the 5-20 TEX range will have as low as 5 m/min linear production rate. Carnaby also pointed out that finer counts have reduced weight per metre and that further aggravates the cost per kilogram of yarn produced, escalating rapidly as the yarn specification becomes finer. The search for new spinning methods was predominantly motivated by the need to increase spinning production rate.

3.3 DEVELOPMENT OF SELF-TWIST SPINNING

Previous sections described wool processing and conventional spinning methods, especially ring spinning. This section outlines the self-twist spinning principle, examines the physics of self-twist spinning, describes the REPCO machines used for production of self-twist yarns, and discusses the advantages and limitations related to self-twist spinning.

3.3.1 PRINCIPLE OF SELF-TWIST SPINNING

Ever since textiles have been produced, a continuous, unidirectional twist has been used to strengthen a yarn composed of staple fibres. The limitations this placed on production rate resulted in the use of alternative twist with continuous spinning.

As already stated, the rate at which the yarn can be produced is primarily determined by the rate at which the twist can be inserted (Brearley and Iredale, 1980 p 104). The necessity to rotate the output package to insert a twist influenced a search for a new solution. Henshaw (1969, P 443) described the development of self-twist spinning as one of the ways to avoid this necessity.

The self-twist system was introduced to the Australian industry in February 1970. Self-twist spinning was invented by CSIRO and commercialized under licence by REPCO (CSIRO, 1975).

Henshaw (1969, P 443) described a new self-twist technique in which the yarn twists itself in a way that a length of yarn having S-twist is followed by a length having Z-twist. The most convenient way of achieving this is by using oscillating rollers (Brearley and Iredale, 1980, P 109). Brearley calls this twist a 'false twist' implying that such a yarn will have little or no strength and very limited use. However, if two such yarns are laid next to each other, the torque in the yarns is such it causes the yarns to twist about each other forming a stable and strong two-fold yarn.

Henshaw (1969) explained the process in more detail. In inserting twist the residual torque appears in the strand which tends to untwist at the first available opportunity. If the twist distribution in a strand having alternating twist could be stabilized, the strand

would have inherent strength. Suppose the twist is temporarily restrained and the strand to be placed beside, and in approximate contact with, a second strand. The residual torque tends to untwist the strand when the twist restraint is removed. Frictional contact between the two strands causes it, in untwisting, to twist about the second strand and to thus to ply itself with the second strand. This plying continues until the twisting torque in the first strand is balanced by the plying torque of the pair, together with the torque introduced into the second strand and the initial untwisting torque becomes balanced in the structure. This process is called self-twisting.

In the practice of 'self-twist spinning', Henshaw (1969) noted, it is more convenient to have alternating twist in both strands and to allow self-twisting to occur in a continuous manner. Self-twist yarn is essentially a two-ply structure in which the plying has occurred owing to the torques introduced into the strands and because of the frictional engagement between the two strands. The plying, or self-twist, then serves to stabilize the twist in the structure, and this in turn imparts strength to the structure.

3.3.2 THE PHYSICS OF SELF-TWIST SPINNING

Self-twist spinning results in a yarn that differs in many respects to conventional spun yarn, but the major difference is its two-ply structure (Brearley and Iredale, 1980, P 109). A further important difference between ring spinning and self-twist spinning is the linear production rate. Brearley et al. (1980, P 111) also found that the power consumption for a kilogram of spun yarn is approximately 25% of that required by a conventional spinner. This indicates enormous cost competitiveness, especially for finer yarns.

The cost competitiveness for finer yarns was welcomed as a greater demand for lightweight fabrics influenced an increased demand for finer yarns. However, a study by Iredale and Nasrullah (1975) on the production of fine worsted yarns using the self-twist technique found that high end breakages were recorded for finer counts. They investigated yarn production under varying processing conditions and the yarns were compared for twist, levelness, strength and elongation. The study also included the influence of the machine speed on end breakage rate and twist roller loading and phase angle on yarn strength.

Self-twist spinning has specific importance for the current Mid Micron product development because of the implications self-twist has for apparent micron shift and softness of the yarn. Carnaby (2006) explained these implications by studying the physics of self-twist spinning and the twist balance of the plied yarn. He noted that the structure of the self-twist yarn traps the fibres in a local energy well and to escape the structure, twist needs to be redistributed from the ply to the singles. Under a certain tension, the two strands will begin to untwist separately as they begin to slip at the contact line between the two strands. As a result the self-twist yarn can be completely pulled apart leaving the individual fibres in their original lowest energy states. Once the two plies are separated the alternating twist in each single strand will redistribute and cancel out. In the absence of external load the self-twist yarn is torsionally balanced, which means it will not snarl up on itself, like for example a freshly spun singles yarn. Carnaby explained that the balance for a plied yarn is an important physical state where the two singles strands are wrapped about one another in separate helical paths, but the fibres at the strand surface are directly parallel with the ply (i.e. yarn) axis. Apparent softness is explained through the balanced character of self-twist yarns. Since the plied structure is in its maximum state of bulkiness, addition or subtraction of ply twist to a balanced yarn will lower the yarn specific volume, hence reducing the amount of entrapped air and shortening the free path length and hence the bending length of the protruding hairs. The balanced character of self-twist yarns explains on the one hand their high warmth to weight ratio and on the other their apparent softness.

3.3.3 REPCO MACHINES FOR THE PRODUCTION OF SELF-TWIST YARN

The machines for self-twist spinning were made by REPCO as a revolutionary solution for creating yarn structure by the use of simultaneously oscillating and rotating rubber-covered rollers for the insertion of alternating twist (Henshaw and Allen, 1970). The twist is inserted by reciprocating rollers which rotate the yarn in zones of S and Z twist. Unless two threads are combined, each single thread left to itself will just untwist and fall apart. Two threads have to be brought together immediately after the reciprocating rollers so that they wrap or self-twist about each other. As more fibre is fed, they self-twist alternately in S and Z direction (Carnaby, 2006; Brearley, 1980).

The REPCO machines represented an impressive solution, but they also showed some mechanical shortcomings. Carnaby (2006) pointed out that speed of the machines was dictated by the design of the reciprocating drive mechanism and that inertia issues exist as the rollers need to rotate and reciprocate simultaneously. The lightly twisted roving which is to be drafted in the drafting unit must be drawn off the supply packages by rotating them. At machine start up the torsional inertia of the packages must be overcome by the tension in these rovings. Carnaby suggested that the inertia issue could be overcome by supplying the packages with a direct drive mechanism.

The biggest issue was that self-twist structure showed poor weavability and fabric patterning (Henshaw, 1969). Carnaby (2006, P 2) noted "...in woven fabrics the yarns gave a rise to a slight appearance changes which were not acceptable to a very conservative worsted industry". The change in appearance was generated primarily by having both S and Z ply twist. A way to overcome this problem is by up-twisting the self-twist yarns straight off the machines to make self-twist-twisted yarn which had a unidirectional folding twist (Henshaw, 1969, P 131). Henshaw explained that once the ply twist became unidirectional, the eye can not distinguish the gross differences in twist level. The up-twisting substantially reduced cost savings and fabrics made from self-twist-twisted yarns resulted in a slightly poorer handle (Carnaby, 2006). However, looking into the handle properties, Henshaw (1969, P 142) found it is possible to achieve a wide range of fabric handle by varying finishing conditions, from soft to harsh that might be commercially desirable.

A further shortcoming was that self-twist yarns were not suitable for single jersey knitwear that was the main volume market. This was because they caused stitch distortion due to entrapment of unbalanced twist. The twist redistributes under the tensions used in knitting. This redistributed twist is not balanced and becomes trapped in the knitted loop leading to torsional buckling effects (Carnaby, 2006)

The market for REPCO machines was rather limited. Although the self-twist yarns were very successfully applied into rib knitted structures (used in socks and Fisherman's Rib knitwear) and in double jersey knitwear, the system never gained wide acceptance. However, it developed a niche market in Europe for the production of high-bulk acrylic yarns (Oxenham, 2003). Even though the trend of high-bulk

acrylic clothing was unfortunate for wool, this market opportunity managed to drive the sales of REPCO machines. Carnaby (2006) reported that several thousand machines were produced and sold and that even today, it is possible to buy new REPCO machines, or a second hand machine for less than 10% of the price of a new machine. However, the REPCO machines have been hardly developed since the initial designs and they achieved minimal penetration against ring spinning technology (Brearley and Iredale, 1980).

REPCO machines are examined in this section because of their role in the Mid Micron product development exercise. The technology used to improve the quality of Mid Micron products is a result of the modification of REPCO machines to redevelop self-twist spinning technology, and incorporate it with the self-twist wool/filament concept, which is examined in more detail in the following section.

3.4 A SELF-TWISTED WOOL/FILAMENT CONCEPT IN YARNS FOR KNITTING: SELFIL SPINNING

A further concept in yarns for knitting was introduced at a conference by CSIRO in July 1975. The new spinning system reinforced a fine, strong, torque-balanced single-strand yarn with fine synthetic continuous filaments (Walls, 1975a, P 358). Walls (1975b, P 2) explained that self-twist yarns are two strand structures that cannot normally be spun as fine as singles ring-spun yarns. The concept of replacing one of those strands with a fine synthetic continuous filament (1 to 2.2 TEX) removes this count limit and results in a yarn structure quite different from a standard self-twist yarn. The continuous filament is wrapped around the staple strand in alternating directions along the yarn. This particular structure is fairly weak and has low abrasion resistance at the places where the direction of wrap changes. To overcome this problem, a second self-twist unit is added to the spinning machine. This second unit is phased relative to the first so that high second unit twist occurs where first unit twist is zero. Again using a fine continuous filament together with the first staple/filament combination, a new structured yarn is produced and is called SELFIL.

Ellis (1975, P 7) analysed SELFIL yarn properties. Because the continuous filaments are present, and form about 10% of the whole, the yarns differ from ring spun singles worsted yarns in a number of important properties. SELFIL yarns have more strength

and are more extensible, and recovery from excessive strain is lower than for ring spun yarns. At normal tensions, the recovery rates are similar. Since the synthetic component is the same irrespective of count, fine yarns have a higher tenacity than coarse yarns.

Nylon is very suitable as a synthetic filament and does not cause significant handle differences. This is because of the small percentage of nylon present and because the fine filaments tend to embed into the yarn surface. Handle differences can be restored in finishing, but in some applications handle differences are even desirable and can be obtained by changing the filament's properties (Walls, 1975a, P 368).

Walls (1975a, P 366) suggested that knitting with SELFIL yarns is superior to knitting with conventional yarns, particularly in fine counts because of the balance of the yarn, high strength, and low fault rate. SELFIL yarns are very suitable for fine-gauge knitting where self-twist yarns have not been completely successful. The important feature of the yarn is a very low twist in the wool component producing the bulk and softness needed for knitting yarns (Walls, 1975a P 363). Ellis (1975, P 11) summarised the principal advantage of SELFIL yarns as seen from knitters and their customers to be: improved winding performance, reduced fly at the knitting machine, no skewing, fewer faults, clearer stitch, more even appearance, and very much improved end use performance properties. Walls (1975a, P 362) found that wool qualities ranging from 19 to 26 microns have been processed satisfactorily and there appears no reason for any restriction in fibre diameter or fibre type.

The SELFIL system was never meant to be a replacement for self-twist, but was intended as a parallel process for the spinning of yarns for knitting (Walls, 1975b). However, the market at that time objected to the use of filaments, so this new concept in yarns for knitting did not take off initially (Carnaby 2006). Later on, new bulking and processing techniques came along specifically for synthetic fibres, enabling the production of yarn incorporating continuous filament that has the characteristics of yarn spun from staple fibre, but without going through conventional spinning (Farnworth, 1969).

3.5 APPARENT MICRON SHIFT TECHNOLOGY – RE-DEVELOPMENT OF SELF-TWIST SPINNING

As previously explained, the mean fibre diameter is the principal reason for Mid Micron wool being discounted in price with respect to Merino wool. In order to create a final product with a good next to skin feel, research focused on the apparent micron shift effect and the reduction of prickle for fibres of a given micron.

To achieve an apparent micron shift effect, Garnsworthy et al. (1985) found that the number of irritant fibres has to be reduced. This may be possible by decreasing fibre rigidity, by increasing fibre length and by decreasing fibre-fibre interaction between fibres. Matsudaira, Watt and Carnaby (1990) measured the surface prickle of fabrics and explored ways to eliminate prickliness. The identified options were: reducing the inherent stiffness by chemical denaturing, manipulating the hair length, or laying the fibres parallel to the fabric surface.

Applying these findings to Mid Micron wool, it means that if the protruding Mid Micron hairs are made longer, prickliness should reduce in proportion to the square of the hair length. If the Mid Micron protruding hairs lie flat, parallel to the fabric surface rather than protrude at a right angle to it, the fabric prickliness will also be reduced.

Miao, Collie, Glassey and Watt (2005, P 150) reported on previous work on apparent micron shift as a way to reduce the prickle sensation of Mid Micron knitwear. In their words the micron shift was achieved through wrap spinning which produced a less prickly fabric than conventional ring spinning without losing fabric wear performance. The introduction of an additional component to form a composite wrap spun yarn further reduced prickliness. This resulted in satisfactory pilling resistance. Compared with conventional ring spun yarn, this modified wrap spun yarn showed an apparent micron shift of 1 micron for 25 mean fibre diameter, 2 microns for 29 mean diameter and 3 microns for 31 mean fibre diameter

In the past research funders were reluctant to support research to improve spinning, since the method is not unique to wool and the findings would equally benefit competitors (Farnworth, 1967). None the less, NuYarn Corporation Limited

recognized the possibility and importance of improving wool processing via the technology of self-twist spinning. NuYarn has put a concerted effort into research to modify REPCO machines. It had otherwise been widely assumed that the current stock of REPCO machines would work out their useful life span and then vanish from the scene (Carnaby, 2006).

NuYarn's technology is private and secret intellectual property. However suffice is to say that by combining a small amount of continuous filament, NuYarn were able to incorporate the dominant wool component into a yarn with minimal twist, but still fully entrap it by pressure between the ply strands (Garth Carnaby, G.A. Carnaby and Associates Limited, Personal Communication, May 2006). Using this concept new Mid Micron products were produced softer and of reduced prickle knitwear, with a skin comfort similar to products made from medium Merino wool.

3.6 MID MICRON PRODUCT DEVELOPMENT RESEARCH PLAN

This section outlines the steps in the development of the new Mid Micron products and the results achieved. A Research Plan for Product Development using Mid Micron wool has been developed by G.A. Carnaby and Associates Limited for Mid Micron NZ Inc. and NuYarn Corporation Limited, and is based around the production of two products: Fisherman's Rib Jumpers and Men's Socks.

3.6.1 PRODUCTION OF INITIAL MID MICRON PRODUCTS

The Mid Micron product development plan included examination of the effect of micron, the effect of yarn structure, and finishing. The objectives were considered to be reached if the finished knitwear had good skin comfort properties combined with all the inherent wool positives. The production of the initial Mid Micron products comprised two developmental steps.

In the first step, fleece lines with specific characteristics were chosen to be assembled into processing lines at Canesis Network's pilot plant, and to be produce into trial tops at nominal 24, 28, 31 and 34 microns. Tops were analysed by the Canesis Testing Department before they were sent to be spun into a variety of novel yarn structures by NuYarn Corporation Ltd. The aim at this stage was to test the hypothesis, that by using new spinning technology, it is possible to create a new yarn structure that displays improved handle and uncompromised mechanical performances.

In the second step, commercial templates were manufactured: Pile Socks and Rib Socks, Fisherman's Rib Jumpers and other knitwear styles. The jumpers with the rib knitted pattern represent a traditional styling, and the socks were chosen as they are aimed at an established volume market which already consumes large quantities of wool with a typical diameter value of 24 microns.

3.6.2 THE EVALUATION OF THE ACHIEVED RESULTS IN THE MID MICRON PRODUCT DEVELOPMENT

The first step of the production of the initial Mid Micron products was evaluated by testing the achieved apparent micron shift and by evaluating the abrasion resistance of different fabric structures. The newly produced tops were compared with a control top (Blue Control) which represented a Mid Micron product with substandard skin comfort. Blue Control is a Fisherman's Rib top produced from Mid Micron wool by using conventional spinning, and Top A and Top B are Fisherman's Rib tops produced from Mid Micron wool by using NuYarn spinning.

Table 3.1 presents the results of knitwear handle assessment testing, by comparing control tops and newly developed tops. The testing confirmed that a micron shift was achieved and that the handle of the fabrics was significantly improved.

TABLE 3.1
MEASUREMENT OF MEAN AND DISTRIBUTION OF FIBRE DIAMETER
OF WOOL USING AN IMAGE ANALYSER

	Nominal Micron	Micron tested 'as received'	Handle Assessment
Blue Control	28	29.85	Felt harsh and prickly
Top A	26	24.85	Felt much softer than the Blue Control top, and the feel was assessed as similar to medium fine Merino top
Top B	34	31.67	Felt softer and less prickly than the Blue Control top

Source: Greer, 2006a

Table 3.2 outlines the results for testing the weight loss at 10000 rubs on a Martindale Abrasion tester. The testing result confirmed that a yarn structure had no effect on abrasion and did not cause a significant difference.

TABLE 3.2

**DETERMINATION OF FLAT ABRASION RESISTANCE OF TEXTILE FABRICS
(MARTINDALE METHOD)**

Sample	Structure	Average % Weight Loss at 10000 rubs on Martindale Abrasion Tester
Blue Control		4.33
Top B	5 Fld (135 Tex)	4.54
Top B	1 Fld (145 Tex)	4.58
Top B	2 Fld (145 Tex)	5.09
Top B	3 Fld (145 Tex)	5.69
Top B	4 Fld (145 Tex)	4.88
Top B	2 Fld (155 Tex)	4.94
Top A	2 Fld (145 Tex)	4.65

Source: Greer, 2006b

The second step of the production of the initial Mid Micron products was evaluated by handle assessment testing of the produced commercial products. This has confirmed an excellent handle for all samples and revealed that the improvement was generic across all knitwear structures. It has proven the initial hypothesis that if the Mid Micron fibre was engineered correctly, it is possible to create a new yarn structure that displays improved handle and uncompromised mechanical performances. This implies that the technology platform for new Mid Micron wool processing is ready for exploitation.

3.7 CONCLUSION

This chapter opened with an outline of current spinning technology. Primarily it described conventional spinning, and then the self-twist spinning and its extension, SELFIL spinning. Self-twist spinning and SELFIL were invented in Australia in the 1970's for the production of quality yarns for knitwear.

Despite advantages in many areas, neither the self-twist nor SELFIL systems became very successful for spinning wool. In recent years, however, a private company, NuYarn Corporation Limited, has put a concerted effort into researching modifications to the original REPCO machines to redevelop self-twist spinning technology, and incorporate it with the SELFIL concept. This has resulted in particular advantages for Mid Micron woolgrowers as it achieves the apparent micron shift effect which is essential if they want to compete in today's market.

Combining a small amount of continuous filament, NuYarn Corporation Limited managed to incorporate the dominant wool component into a yarn with minimal twist, but still fully entrap it by pressure between the ply strands. The result is a softer and technologically differentiated Mid Micron yarn, and reduced prickliness of a fabric of a given micron.

The technology has been applied to produce two products, Fisherman's Rib Jumpers and Men's Socks, which have shown improved softness and reduced prickliness. By correcting the substandard skin comfort and targeting a major consumer need for softer and prickle free products, the use of the new technology represents development of the technological aspect of the new Mid Micron Value Proposition for consumers. Although finding a solution for the Mid Micron technical problem represents significant improvement in product potential, it remains necessary to support newly developed products through various marketing and management initiatives.

4 LITERATURE REVIEW AND ANALYTICAL FRAMEWORK

4.1 INTRODUCTION

The previous chapter explained how new technology can address the problems associated with the product quality of Mid Micron wool. If this technology is to be used to create value for consumers, then it must be captured through product development that is market linked. This chapter focuses on the marketing aspects of creating value for consumers. It covers the theory of product development and value propositions.

Section 4.2, Creating Value For Consumers Through Product Development, covers how to create value for consumers through a product development process and customer focussed thinking, and examines different types of innovation and new products in term of their characteristics and associated risks. Further, the section looks at new marketing initiatives, focusing on new market segments and supply chain reconfiguration.

Section 4.3, Alternative Value Proposition Models For Consumers, defines the value proposition concept and identifies alternative value proposition models and their elements. The examined models are Operational Excellence and the associated Cost Leadership strategy, Product Leadership and the associated Differentiation strategy and Customer Intimacy and the associated Focus strategy.

Section 4.4, Developing A Framework For The Models' Comparison, derives an analytical framework for the purpose of this research which is based on the theory presented in the chapter. This section presents a template that can be used to compare identified alternatives for developing a new value proposition for consumers of Mid Micron wool products.

4.2 CREATING VALUE FOR CONSUMERS THROUGH PRODUCT DEVELOPMENT

This section discusses new product development in the context of creating value for consumers. It is important to understand the activities needed to design a new product, and to understand the influence of new product development on a company's future. The section is structured to explain the product development process, the customer focused philosophy, different types of innovations and products, and new marketing initiatives.

4.2.1 THE PRODUCT DEVELOPMENT PROCESS

The new product development process comprises a set of actions that will package customers' needs and wants in the form of a new product or service (Monczka, 2000). However, product development can also be defined as a business project that aims to satisfy a goal (right product quality), a budget (at right cost), and a schedule (at right time) (Moore and Pessemier, 1993).

The first step of product development is generating new ideas by using one or more of many different techniques. Some of the available techniques are: Delphi method (involves successive rounds of written idea exchange among the group participants until they produce a mutual consensus), Attribute listings (involves identifying and analysing product attributes with a view to improve them), Morphological analysis and Forced relationships techniques (involve looking at performance characteristics to effect product refinement) or Brainstorming, which is viewed as a very popular technique (Rosenau and Moran, 1993).

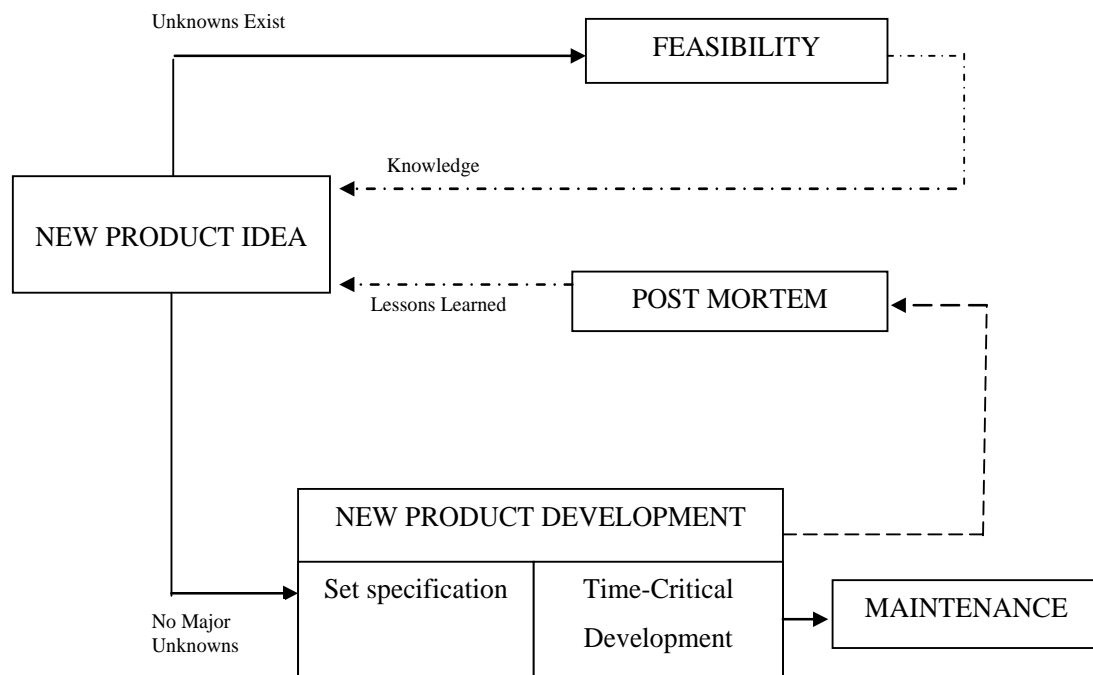
The Brainstorming method is generally very useful in addressing customer satisfaction problems (Band, 1991). This method is considered suitable for solving a particular problem, such as exploiting a new technology, modifying a product or finding a technical solution for a problem, or considering a new product for entry (Moore and Pessemier, 1993), all of which are features of the new Mid Micron product development.

Rosenau and Moran (1993) conceptualised a product development project through the developmental activities it consists of (Figure 4.1) Feasibility, New Product Development, Post Mortem, and Maintenance. Feasibility is described as an activity which eliminates the major unknowns about the market, implementation technology, and production and delivery processes. New Product Development is explained as balancing the trade off between product specifications and time-critical development. In this phase the objective is to specify what the product is to be developed for. Further, the authors described Post Mortem as a learning activity necessary for future improvements that can simplify or perfect existing procedures. New Product Development and Post Mortem activities are usually carried out by a multifunctional team, whose decisions will ultimately affect the final product's cost and quality. Finally, Maintenance is described as an activity that may be required once the product is launched in the market. It involves services such as installations, repairs, or customer support when the product is sold and used.

To further clarify the trade-off between product specification and time critical development, Rosenau and Moran (1993) explained that meeting product specifications can be relatively difficult or easy, and as such, these will, respectively, prolong or reduce the time to market. Time to market is also influenced by available resources, which can be more effective or less effective. This implies that the product with easier specifications will be taken to market in less time than product with difficult specifications, and more effective resources will also shorten the time to market for a given product specifications compared with less effective resources.

The correlation between product specifications and the time needed to develop that product will prove to have major implication for the Mid Micron product development. Moore and Pessemier (1993) argued that some development steps such as internal or consumer testing, or manufacturing, distribution and marketing planning should not be skipped. However, they found that emphasizing speed by forming small multifunctional teams and quicker development, can lead to doing things right the first time, sharing information on all levels, as well as eliminating unnecessary delays.

FIGURE 4.1
NEW PRODUCT DEVELOPMENT PROJECT



Source: Rosenau and Moran (1993)

This theory on the Product Development project will be used to understand and position the “New Mid Micron Products” project, by identifying how it started and how it was structured. It will also be used to explain why the specific new Mid Micron Products were developed.

4.2.2 A CUSTOMER FOCUSED PHILOSOPHY

In response to increasing competition, companies started to adopt ‘customer focused thinking’ in the mid 1980s (Ulwick, 2005). Total Quality Movement (Rosenau and Moran, 1993), Customer Satisfaction, Customer Service Excellence and Customer Focus (Band, 1991) are all different names for essentially the same philosophy of continuous improvement in the value for customers in order to meet their growing needs and wants. In the following decade, this customer driven philosophy, became an imperative that has transformed the approach to marketing and business.

The more traditional approach to marketing viewed a new product as a material thing that combined tangible characteristics, while the new approach to marketing identified a product as a core benefit delivered to consumers through the combination of both, tangible and intangible benefits (Scheuing, 1989). Ulwick (2005) proposed the term ‘value for consumers’ and defined a new product or innovation as creating a product or a service solution that delivers a specific new value for consumers.

Customer empowerment was given greater emphasis with the Quality Movement, and Total Quality Management philosophies (Band, 1991; Rosenau and Moran, 1993). Quality Movement emphasises product excellence and control to meet the customer needs, while Total Quality Management emphasises a strategy to develop a new product in a way that will increase customer satisfaction, reduce time to market and lower development expenses (Rosenau and Moran, 1993). Total Quality Management also emphasises customer oriented quality principles that cover a complete product cycle provided through teamwork, communication and entrepreneurial company spirit (Band, 1991). This means that a company guided by Total Quality Management principles will embrace the idea that its future fully depends on its customers.

These principles of embracing a customer focus are important to the “New Mid Micron Products” project. This is because the new Mid Micron product development project plans to embrace Total Quality Management principles in an attempt to maximise customer satisfaction.

4.2.3 INNOVATION AND NEW PRODUCT TYPES AND CUSTOMER ACCEPTANCE RISK

In evaluating customer wants, and innovations in terms of the values they provide to consumers, Ulwick (2005) described different types of innovation: Product or Service Innovation (an improvement to existing product or service), New Market Innovation (a completely new solution for consumers), Operational Innovation (an innovation of business operation often in terms of rethinking and reconstructing value chains), and Disruptive Innovation (when a company uses new technology to disrupt a prevailing business model in an existing market). In Disruptive Innovation, the technology already exists and the company is in search of a customer and an opportunity (Ulwick,

2005). This means that there is no guarantee that the technology a company owns will address any particular customer need or add new value.

Rosenau and Moran (1993) defined new product types differently by classifying them as Product Modification, Line Extension, Me Too Imitation, and New to the World Products. These authors provided a valuable observation on 'product newness' in terms of how new the product is to a company and how new the product is to a market. Product Modification has low newness to the market and to the company; Line Extension has high newness to the market and low newness to the company; Me-Too Imitation has low newness to the market and high newness to the company; and finally New-To-The-World Product has high newness to the market and to the company.

With regard to the level of product newness, the main consideration is how the product is perceived in the market. Scheuing (1989) explained that this is mainly because the circumstance under which a product is considered new is primarily a matter of consumer perception. The product has to be recognized as new and different by consumers. Besides product newness, product uniqueness represents another important aspect of the company's offer (Scheuing, 1989). Product uniqueness means providing something so new and different that no other product currently offered in the market can match it.

Moore and Pessemier (1993) studied the factors associated with the failure of new products in the marketplace. They found that 30% of unsuccessful new product launches are because the product does not meet an unfilled need. Ulwick (2005) reached a similar conclusion when studying the common mistakes in prioritizing opportunities. One of the common mistakes is improvement in areas that are already satisfied and improvement therefore fails to add additional customer value.

The different types of innovation and products, examined in this Section, along with their characteristics, will be used to describe the Mid Micron product development process and the newly developed products. This will be important in analysing opportunities and risks associated with the developed products.

4.2.4 NEW MARKETING INITIATIVES

Although product development is a prime requirement in creating value for consumers, it also represents a base for rethinking and redirecting a company's future through various marketing initiatives. Hence, new product development can be understood as "an opportunity of becoming a catalyst for corporate changes" (Rosenau and Moran, 1993, P 4). For the purpose of this research, marketing initiatives, that will be examined, are focusing on new market segments through building E-Commerce business, and capturing the value through supply chain reconfiguration.

4.2.4.1 Focusing On New Market Segments

New marketing initiatives represent an opportunity to support or further increase the value for consumers. Scheuing (1989) argued they are often necessary because an organization has to be set up or restructured to support new products.

E-Commerce is important for the "New Mid Micron Products" project because of the issues associated with the structure of New Zealand Mid Micron sector, discussed in Chapter 2. They are that the customer base is shrinking and demand for Mid Micron wool is declining, there is a long and complex supply chain structure, and there is inefficient communication with the final consumer.

E-Commerce has had a significant impact on marketing channel strategy in the last fifty years and has become a significant and necessary channel for reaching new customers for both, large or small companies (Rosenbloom, 2007). The Internet also created an opportunity to create a more collaborative communication structure for all members in the chain. Choosing the Internet as a retail format offers direct communication and facilitates interactions with company's customers, suppliers and distributors (Walters and Lancaster, 1999).

Drivers for developing E-Commerce are: the size of market available through the Internet; the convenience and effectiveness of reaching customers; and the change of information systems from being focused within individual businesses to being focused between businesses, allowing supply chain efficiencies (The Knowledge Exchange,

n.d.). The Internet can replace part of the traditional distribution channel (Bidgoli, 2004). At the same time, the Internet is a good source for connecting players with the same market interest: suppliers, producers, customers, competitors etc (Walters and Lancaster, 1999). There are other types of advantages often associated with E-Commerce. These are listed in Table 4.1 alongside some disadvantages.

TABLE 4.1
CHARACTERISTICS OF THE E-COMMERCE BUSINESS

ADVANTAGES	DISADVANTAGES
Conducting business at all hours of a day, every day of a year	Issues related with time needed to deliver physical products
Global business opportunities by accessing the world market	Uncertainty related with not having physical access and 'real' knowledge about product, supplier or delivery
Speed of communication	Limitation to non perishable goods
Competitiveness with established web-enabled business	Limited sensory information to visual and auditory
Opportunity to reduce costs by identifying cheaper business options	Uncertainty issues related with returning goods
Efficient application development environment	Privacy issues related with security, payment, identity, contract, defined services and the unexpected
Allowing customer self service and customer outsourcing	Lack of personal service in terms of lack of human interaction
Stepping beyond borders to a global view	Issues related with a very small and very large transactions when those orders are rated uneconomic

Source: The Knowledge Exchange, n.d.

Walters and Lancaster (1999) noted new ways by which information is communicated to the market as the most significant Internet role. Compared to the traditional communication structure between partners, the Internet created a new non linear and asynchronous information flow in the chain (Bidgoli, 2004).

Providing an opportunity to reach consumers directly, E-Commerce is consistent with the Direct to End Users model. Miller (1998) suggested that the main questions in the Direct to End Users model that need to be explored are whether to own inventory in storage or to extend the supply chain and use partner's warehousing, and whether the supply chain can achieve the cost and speed balance. The success of the model is determined by the flow of information, coordination of the shipment to consumers and the minimisation of shipping charges.

4.2.4.2 Supply Value Chain Reconfiguration

Besides focusing on new market segments, value for consumers may be increased by reconfiguring the value chain. In this role, supply chain management represents a strategic tool to focus on the operational issues of how to capture the value and to develop customer focus and commitment to Total Quality Management. This results in strengthening the company's value proposition (Quinn, 1997; Ross, 1999; Lambert Cooper and Pagh, 1998; Mentzer, 2001). Because of its importance for this research, the examined aspects of Supply Chain Management are relationships dynamics in the chain and chain leadership structure. The Chain Leadership material was inspired by Patterson (2005).

Addressing the relationship and leadership dynamics in the new Mid Micron chain may resolve some of the issues associated with the structure of the New Zealand Mid Micron Sector, which was discussed in Chapter 2. They are that most of the final product value is created outside the chain, there is a lack of customer focus in the chain, there are problems associated with the auction system, and there are communication problems inside the chain, in particular, between woolgrowers and their downstream consumers.

4.2.4.2.1 The Relationships Dynamics In The Chain

The new Mid Micron Business relies on product development which is not carried out inside a particular company, but occurs indeed at the supply chain level. In this early stage, the business is just developing its own competencies, which is why the success is highly dependent on the relationship with the spinner, who holds the technology,

and the competencies and strengths of the other participants in the value creation process. Therefore it will be crucial to structure and manage effective partnerships.

Lambert, Knemeyer and Gardner (2004) saw a partnership as a business relationship based on mutual trust, openness, shared risk and shared rewards, that results in business performance greater than would be achieved by the two firms working together in the absence of a partnership. Partnerships are motivated by a common vision of the future (Ploetner and Ehret, 2006) and are dependent on trust between partners (Rese 2006; Ploetner and Ehret 2006; Ellram, 1995; Lambert et al, 2004). Spekman, Kamauff and Myhr (1998) spoke about the expected trust in terms of a sense for fair play between partners.

Critical factors can be identified when forming successful partnerships. Gattorna (1998) described the most beneficial situation as when all participants in the chain feel they have an equal investment in each other's success, by sharing information and strategies. This implies the need to align the chain strategy with the strategies of individual businesses in the chain (Li and Wang, 2006).

Ellram (1995) found that the most likely cause for partnership failure is poor communication, followed by poor management, lack of trust, lack of total quality, poor up-front planning, lack of strategic direction for the relationship and lack of shared goals. Lack of trust and communication can cause chain members to become too greedy or suspicious that other chain members are profiting at their expense (Fredendall, Hill and Hill, 2001).

As each member of the chain is likely to have a focus on their own self-interest, choosing partners should be based on the complementarity of the joint resources and the compatibility of partner-related norms (Ploetner and Ehret, 2006). Reaching the full potential of the supply chain requires a long term focus on the performance of the overall system (Etgar 1976; O'Keffe, 2006) so it is important to resist the pressure coming from members in the chain who might be interested in short terms goals.

Once partners are selected, relationships need to be structured, coordinated and managed to reach mutual objectives (Martin, 1998) and maintain the unity of the supply chain (Lambert et al, 2004). This introduces another concept that needs to be explored for the purpose of this thesis, which is the Leadership Structure of the supply chain.

4.2.4.2.2 Leadership Structure In The Chain

Application of Supply Chain Management principles causes a change in the coordination mechanism between supply chain members, with partners now relying on each other to improve the value for consumers and reduce cost. The Chain Leader concept represents a potential coordination mechanism between partners.

The Chain Leader can be defined through the ability to control some or all of the decisions and activities in the channel network to achieve a desired outcome (Little, 1970; Etgar, 1977) or the ability to actively manage the chain to achieve optimization of the entire supply chain and maximize the final customer value (Fredendall, Hill and Hill, 2001). By focusing on this ‘coordinator role’, rather than on a ‘controller role’, the Chain Leader may be viewed as a facilitator in the chain through its ability to provide the necessary means, needed information and needed support, to automate and manage the coordination of a supply chain (Jansen, 2004).

It is important for a Chain Leader to gain benefits for the whole chain, and in turn, for every individual member of the chain (Koster and Delfmann, 2005; Fredendall, Hill and Hill, 2001; McAdam and McCormack, 2001). Examining Leader’s roles and responsibilities is important for the “New Mid Micron Products” project, because it addresses the attempt of Mid Micron woolgrowers to assume the overall control over the newly developed products and business.

One of the Chain Leader’s roles is to identify critical activities, where improvements in the chain can be made and how they can be used to gain benefits for everybody in the chain (Fredendall, Hill and Hill 2001). The Leader has to mediate between functions and members in the chain, maintain the vision of the end-to-end process and define responsibilities throughout the chain that will assure that the chain reaches its full potential (Cohen and Roussel, 2005). It is critical that the Chain Leader copes

with complex, diverse and continuously changing customer needs and behaviour by recognizing the need to redesign the business and implement change when required (O’Keeffe, 2006). The challenging business environment also requires an ability to reach target markets, and to build and sustain relationships across the entire supply chain network (Walt, 1998).

The literature examined in this Section will provide a basis for analysing an opportunity for the new Mid Micron Business to reconfigure its supply chain. The focus is on structuring effective partnerships and managing these partnerships.

4.2.5 CONCLUSION

This section has discussed product development and its role in creating value for consumers. A product development process was analysed through the developmental activities, and this will be used to provide a framework for assessing the “New Mid Micron Products” project; how it started, how it was structured, and what methods were used in the project. Further, the Customer Focused Philosophy and Total Quality Management identified customer oriented quality principles as a dominant imperative for successful modern businesses. Types of Innovation and types of new products, with their characteristics, were examined to determine risks and opportunities associated with the innovation processes and level of product newness. Finally, this section explained new marketing initiatives of focusing on new market segments at a strategic level and supply chain reconfiguration. This led to examining the structuring of E-Commerce business, and forming effective partnerships and leadership in a new chain. The next section extends the concept of value creation for consumers further, by considering the complete value proposition.

4.3 ALTERNATIVE VALUE PROPOSITION MODELS FOR CONSUMERS

This section defines the value proposition for consumers, and alternative value proposition models based on Treacy and Wiersema (1995) and Porter's (1980) research on the subject. The examined models emphasize different philosophies, values for consumers, sources to develop these values, and value proposition elements: price, products and delivery to market. The examined value proposition models are Operational Excellence and the associated Cost Leadership strategy, Product Leadership and the associated Differentiation strategy, and Customer Intimacy and the associated Focus strategy.

4.3.1 DEFINITION AND ALTERNATIVE VALUE PROPOSITION FOR CONSUMERS MODELS

The modern perception of a value proposition for consumers has been explored by a number of authors. Traditionally, a value proposition was defined from a company's point of view and used to describe "quality built into a product or service related to its price" (Crego and Schiffrin, 1995, P 21). Modern views of what a value proposition is overlap and include a number of key points. Definitions of value propositions identify it as either a combination of values that will appeal to customers (Traecy and Wiersema, 1995), an outcome that will fulfil an unsatisfied customer need (Band, 1991), an underserved customer requirement (Ulwick, 2005), or as a company's offer to attain customer satisfaction (Rosenau and Moran, 1993). All definitions, however, emphasize quality assurance and superiority when compared to competition, and recognize a measure for success through customer happiness. This is consistent with the customer focus philosophy and means that it is no longer important what a company thinks value is, but what matters is what a customer thinks. Therefore, answering the question 'what is a strong value proposition for consumers?' means answering the question 'what makes consumers happy?'

It is appropriate to evaluate a value proposition through the specific elements it consists of. Band (1991) breaks down the value proposition into all the 'trade off' elements between company and consumers. He argues that the value proposition contains: quality in terms of product features as a value for consumers; cost in terms

of the ‘sacrifice’ it requires from consumers, and schedule in terms of way the product is delivered to consumers.

Crego and Schiffrin (1995) summed up the elements or values of the proposition and came up with the term ‘total experience’. They have defined total customer value as “a state in which the quality of a total experience, as perceived by the customer, exceeds its cost” (P 22).

Consumer expectations of value will vary for different market segments, different groups of products, or different product purposes. This implies that it is possible to develop different value proposition models that will then have corresponding strategies, associated with how to present and deliver different values to consumers.

For the purpose of this research, the alternative value proposition models that are considered emerged from Treacy and Wiersema’s (1995) work on the value proposition concept. Their approach to developing a value proposition model for market leaders is based on Porter’s (1980) analysis of the competitive forces in an industry. Porter identified three generic business strategies, Cost Leadership, Differentiation, and Focus, that can be adopted in order to create a company’s competitive advantage. He found that strategies differ along two dimensions: strategic scope (a demand-side dimension that measures target market) and strategic strength (a supply-side dimension that looks at the strength or core competency of the firm). Two major core competencies with a wide market scope are ‘being efficient’, or ‘being unique’.

Treacy and Wiersema (1995) defined the value proposition as a promise of the combination of values a company agrees to deliver to consumers. Identified value disciplines are: Operational Excellence, when a company is a market leader by combining product quality, ease of purchase and product price; Product Leadership, when a company is a market leader by offering the best product to customers; and Customer Intimacy, when a company is a market leader by focusing on a specific customer, providing a mix of services and product customization as ‘the best total solution’.

Treacy and Wiersema (1995) suggested the first step in identifying a value proposition is to define the value discipline that embraces company strengths, and can be mastered to an extraordinary level. The following step is building an operating model that will support that discipline and achieve prosperity and sustainable strength through continuous improvement of that discipline. They recommend that every market leader has to choose one discipline to focus upon and consequently determine how to emphasize different operating processes, and how to develop different business structures and management systems. The in depth analysis that is required before defining a value proposition is the main reason why Treacy and Wiersema's concept is examined in greater detail in this thesis.

4.3.2 OPERATIONAL EXCELLENCE MODEL AND COST LEADERSHIP STRATEGY

The philosophy associated with the Operational Excellence model involves providing the best combination of price, reliability and convenience for consumers. A company adopting this model aims to become a Market Leader by developing a Best Total Cost value proposition for consumers, and achieves growth through a constant, steady volume of business, and through finding new ways to use existing assets and to replicate the winning formula in new markets (Treacy and Wiersema, 1995).

The Operational Excellence proposition for consumers relies on offering the best product value for a given price. Having competition about a price is consistent with Porter's (1985) Cost Leadership strategy by which a company has a goal of being a low-cost producer and to continuously search for cost reduction that will result in cost advantages. To achieve Cost Leadership and compete with potential competitor imitators, a company usually needs a considerable market share advantage or preferential access to raw materials, proprietary technology, vertical integration, components, labour, or some other important input (Porter, 1985).

Among the value proposition elements for consumers - price, products and delivery to market - the emphasis in Operational Excellence is placed on the price as the strongest point, followed by product quality and branding that aims to improve product image. Although the competitive price is the dominant focus in the Operational Excellence model, low cost does not always lead to low price. Cost Leaders should aim to sell

their products/services either at average prices (at competitive parity) to earn higher margins than competitors, or at below-average prices to expand market share (Porter, 1985).

The Operational Excellence model and the Cost Leadership strategy suggest that a company should develop standardised products and a limited product range to target a very large customer base (Porter, 1985; Treacy and Wiersema, 1995). Porter emphasized that even though a Cost Leader bases competitive advantage on a lower cost strategy, it has to “... achieve parity or proximity in the bases of differentiation relative to its competitors to be an above average performer, even though it relies on cost leadership for its competitive advantage” (Porter, 1985, P 13).

The Operational Excellence model implies that the appropriate distribution structure is to obtain the most extensive sales possible by targeting a market with large demand and where the customers are more interested in cost than in choice. One of the options for reaching a wide customer base is through an E-Commerce retail format. This format might also be helpful in achieving control over materials, products and operations, and over the costs and profits.

4.3.3 PRODUCT LEADERSHIP MODEL - DIFFERENTIATION STRATEGY

The philosophy associated with the Product Leadership model is providing the best products that continually redefine superior value for consumers (Treacy and Wiersema, 1995). Product Leaders are determined to differentiate their offer, which will be recognized by consumers as providing real, new or improved value. Having competition about a product and pursuing uniqueness in an industry is consistent with the differentiation strategy (Porter, 1985). A company following the Product Leadership principles gains profits due to the higher margins on the developed products and prospers by managing its business portfolio and narrowing that portfolio to capture the best opportunity that has the biggest potential to hit big (Treacy and Wiersema, 1995).

The Product Leadership proposition for consumers relies on developing and maintaining a clear reason for preferring the company's product over a competitor's product (Treacy and Wiersema, 1995; Porter, 1985). An operating model typically has an innovative orientation, a flexible structure, and efficient coordination that allows resources to move towards the most effective ideas (Treacy and Wiersema, 1995). Differentiation can be based on many factors, including the product's tangible or intangible features, prestige or branding strategy, technology, innovation, customer service, and a value chain structure or relationship through which the product is delivered to consumers (Porter, 1985).

The most relevant requirement for the Products Leaders' products is delivering something unique to consumers. In the case of apparel products, product differentiation may rely on functional and emotional considerations for consumers (Ulwick, 2005). It is typical that differentiation often implies high capital investment because of the additional costs incurred in creating the competitive advantage, and because of the incentive to innovate to provide a steady stream of new products and continuously improve existing offers. However, it is important not to ignore a company's cost position. This means it is recommended to reduce any costs that do not affect company's points of difference (Porter, 1985).

The value created through the uniqueness of the product must allow the company to charge a premium price above the extra costs incurred in creating and offering the product. This premium price represents a company's reward and is a reflection of the higher costs of differentiating the product and special extra added values provided to consumers (Porter, 1985).

The target market is typically an up-market segment where customers are interested in different products. This market is very competitive and is dominated by already established, strong brands. Companies introducing themselves to this market need to aim their marketing efforts towards creating their own strong brand as a way of preparing the market and educating customers to accept a product that has never existed before (Treacy and Wiersema, 1995). E-Commerce can also be used to reach this targeted customer with this option. This format may prove successful in reaching

global business opportunities and stepping beyond borders which is typical for a Product Leaders.

4.3.4 CUSTOMER INTIMACY AND FOCUS STRATEGY

The philosophy associated with the Customer Intimacy model relies on focusing to deliver what a specific customer wants (Treacy and Wiersema, 1995). Having competition about a customised value proposition to match customer's needs and wants in the best way, is consistent with Porter's (1980) Focus strategy.

Treacy and Wiersema (1995) described a typical Customer Intimacy operating model as a decentralized model, aiming to create tight and long-term relationships with customers. The structure should allow a company to develop a strong expertise about the target customers and to build customer loyalty as a company's most important asset and a necessary requirement for being profitable.

The value proposition for consumers is not relying necessarily on offering the latest product, but on offering unmatched value in terms of offering the best result for consumers and helping in obtaining it (Treacy and Wiersema, 1995). By customizing a value proposition to meet specific needs, the company aims to gain a competitive advantage through its tight focus on the individual customers' needs.

The Focus typically has two variants: the Cost Focus when a company seeks a cost advantage in the particular market segment, and the Differentiation Focus when a company seeks differentiation in the segment (Porter, 1980) This is why the Focus strategy is also known as a 'niche' strategy and is often used where a company can afford neither a wide scope Cost Leadership, nor a wide scope Differentiation strategy (Marketing Teacher, 2007). Porter (1980) noted that Cost Focus exploits differences in cost behaviour in some segments, while the Differentiation Focus exploits the special needs of buyers in certain segments.

The characteristic of concentrating efforts and resources on a narrow, defined segment of a market is the dominant point of difference when compared to Cost Leadership and Differentiation that are typically concentrated on a broad market share (Porter, 1980). The narrow competitive scope characteristics for the Customer Intimacy value proposition model creates some limitations when considering this value proposition option for the Mid Micron Business and this will be further explored in Chapter 5.

4.4 DEVELOPING A FRAMEWORK FOR MODELS' COMPARISON

The literature, reviewed in the previous Section, is used to provide a theoretical framework that can be used to evaluate the new Mid Micron value proposition options. The first element in this framework will be to outline the Mid Micron Product Development process in order to describe the newly developed products, and the associated risks and opportunities. Once this has been done, the alternative value proposition options will be evaluated in the context of the Mid Micron Business. This will be supported by examining established market leading companies to provide an understanding of the existing products in the market, their prices, and competitors' strategic directions.

In order to compare Mid Micron value proposition options, a template has been developed and is shown in Table 4.2. It represents a summary of the theory outlined in the previous Section and includes considerations needed to analyse alternatives ways of capturing the value from the new Mid Micron products. The comparison involves:

1. the philosophy and potential net returns to the value chain the business is ready and capable to commit to;
2. the value proposition and related sources, needed resources and risks;
3. the specific elements of the chosen value proposition:
 - a) price and subsequent risk associated with the pricing strategy;
 - b) products and product image, and subsequent risks associated with the product management;
 - c) distribution format and the subsequent decisions related to product exclusivity and convenience, and the risk associated with the distribution format.

TABLE 4.2

FRAMEWORK FOR THE MODELS' COMPARISON

	ALTERNATIVE MODELS		
	X	Y	Z
PHILOSOPHY			
Principle To identify a dominant principle to reach company's vision			
Net returns to value chain To outline a dominant source for net returns to value chain			
VALUE PROPOSITION			
Definition To define value proposition and its focus element as it may be presented and promoted to customers			
Sources to develop competitive advantage associated with the value proposition To describe potential sources to develop advantages proposed by value proposition model			
Risks related to developing aimed competitive advantage To evaluate the risk of using the identified sources			
VALUE PROPOSITION ELEMENT - PRICE To identify pricing strategy and potential price range			
Risk related to pricing strategy To outline potential risks of the pricing strategy			
VALUE PROPOSITION ELEMENT - PRODUCT To identify considerations regarding product image and branding strategy			
Risk related to branding strategy To outline risk related to branding strategy			
VALUE PROPOSITION ELEMENT -DISTRIBUTION To identify potential distribution format, target market and customers			
Risk related to distribution format and targeted market To outline potential risk characteristic for the defined distribution format and target market			

4.5 CONCLUSION

In this chapter, literature was reviewed on new product development and alternative value proposition models. The aim of this chapter was to derive an analytical framework that can be used for the empirical component of the study which will identify and compare value proposition options for the Mid Micron Business.

The literature on the product development process underlined the role of new products and new marketing initiatives in their role of creating value for consumers. The focus was on understanding the imperative for a continuous increase in the value for consumers, and the risks and opportunities associated with new product development. This theory will be used to describe how the “New Mid Micron Products” project started, how specific Mid Micron products resulted, and what these new products are and the challenges they face.

The value proposition for consumers is defined as a combination of values to meet consumer needs and wants, and to maximise customer satisfaction. Value proposition models were studied through the elements they consist of, focusing on: product, price and delivery to market. The study identified the alternative value proposition models: the Operational Excellence model, consistent with the Cost Leadership strategy, the Product Leadership model, consistent with the Differentiation strategy and the Customer Intimacy models, consistent with the Focus strategy. These models will be used to examine different routes for capturing the value from newly developed Mid Micron products, according to whether they are aimed at narrow or broad market share, and whether they require of low or high capital investment.

Therefore, the literature provided a theoretical framework that can be used for the empirical research in this thesis. The models are presented and compared as alternative routes for the Mid Micron Business to pursue, and the challenge for the Mid Micron Business is to choose the route that they consider to be most appropriate.

5 OPTIONS FOR DEVELOPING NEW MID MICRON VALUE PROPOSITION FOR CONSUMERS

5.1 INTRODUCTION

This chapter uses the theory and analytical framework presented in the previous chapter to identify and compare options for developing a new Mid Micron Value Proposition. It examines alternative ways of capturing the value from newly developed products and the subsequent implications of each of the alternatives.

Section 5.2, Creating Value For Consumers Through Product Development, describes how it is intended to create value for Mid Micron consumers through the “New Mid Micron Products” project. The project combines new product development and new marketing initiatives, focusing on new market segments and supply chain reconfiguration. The aim is to examine the decisions and actions that resulted in developing Fisherman’s Rib Jumpers and to look at the characteristics, opportunities and risks associated with this product type.

Section 5.3, Alternative Mid Micron Value Proposition Models For Consumers, describes the value proposition concept that will be used for the purpose of this research. It identifies two models, Operational Excellence and Product Leadership, as available options to develop the Mid Micron Value Proposition. It also introduces Norsewear of New Zealand Limited, Swandri New Zealand Limited, and Snowy Peak Limited as example of current, successful New Zealand companies in the textile industry. Looking at their business methodologies provides an understanding of the existing products in the market, their prices, and optional strategic directions.

Section 5.4, Operational Excellence, examines the potential for the Mid Micron Business to follow the Operational Excellence model, and the associated Cost Leadership strategy, and develop cost advantages in the market. It discusses the value proposition elements of price, product and delivery.

Section 5.5, Product Leadership, examines the potential for the Mid Micron Business to follow the Product Leadership model, and the associated Differentiation strategy, and develop unique advantages in the market. It discusses the value proposition elements of products, price and delivery.

Section 5.6, Comparison Of The Two Models, uses the template developed in Chapter 4 to compare the identified value proposition models options. This comparison presents opportunities for the Mid Micron Business, with alternative capturing value from the newly developed products. The comparison covers principles and net returns to the value; identified definitions of the value propositions, their sources, potentially needed investments and risks; and the elements of each value proposition model: price, product, and delivery to market with associated risks.

5.2 CREATING VALUE FOR CONSUMERS THROUGH MID MICRON PRODUCT DEVELOPMENT

This section describes Mid Micron product development in the context of creating new value for consumers. The section describes the activities associated with the Mid Micron product development and the underlying customer focused philosophy, the type and characteristics of the developed Mid Micron products and the associated risks, and the new marketing initiative.

5.2.1 THE MID MICRON PRODUCT DEVELOPMENT PROCESS

Analysis of the position of Mid Micron wool in the textile market, presented in Chapter 2, was the first step in facing the increasing competition in the apparel segment. The customer-focused philosophy and the Total Quality Movement have had a significant impact in the textile industry, and textile manufacturers have been pushed to improve old textiles and invent new textile solutions to improve the value for customers to meet their growing needs and wants. The new Mid Micron product development was founded on the same principle of maximising customer satisfaction.

Considering that a modern textile buyer views skin comfort as a core product benefit, it is possible to conclude that the substandard skin comfort of finished Mid Micron clothing is a key cause for its presently weak value proposition. However, the overall situation of the Mid Micron Sector is more complex due to other factors, and it is argued that the substandard skin comfort is compounded by the inefficient Mid Micron value chain and unfocused marketing efforts.

Once Mid Micron woolgrowers acknowledged the negative market reaction and realized that considerable changes were needed to improve the position of their product, they established Woolgrowers Marketing Limited. It was planned that this company remains in their direct ownership, with the role of representing woolgrowers' interests in the quality correction and value creation process, ensuring and retaining overall control during the process, restructuring the existing value chain, and undertaking marketing activities. G. A. Carnaby and Associates Limited were engaged to coordinate and support the overall exercise. The first task was to commence a product development project.

The Mid Micron product development project was started by setting up a multifunctional product development team. A group of experts brought together expertise from the Wool Industry (Alan Gallagher, representing Mid Micron woolgrowers and Woolgrowers Marketing Limited as Project Leader, and Garth Carnaby, from G.A. Carnaby and Associates Limited as Project Coordinator), Marketing (John Stevens, Knitter and Retailer and owner of Shalimar Knitwear Limited), Research and Development (Garth Carnaby, Consultant, and David Lee and Arthur Lee, Owners of NuYarn Corporation Limited), and Engineering and Manufacturing (David Lee and Arthur Lee as Spinners and owners of critical know-how). Team members recognized the opportunity to benefit as part of a new Mid Micron value chain that would be structured around newly created products, increasing the motivation and determination of the team.

The team used brainstorming as a principle technique to generate ideas for new Mid Micron products, and to solve the customer satisfaction problem. The team based most of the product related decisions on experience and market observations, combining knowledge about competition, customers and wool processing technology, to design products that can be launched into the market in a relatively short time.

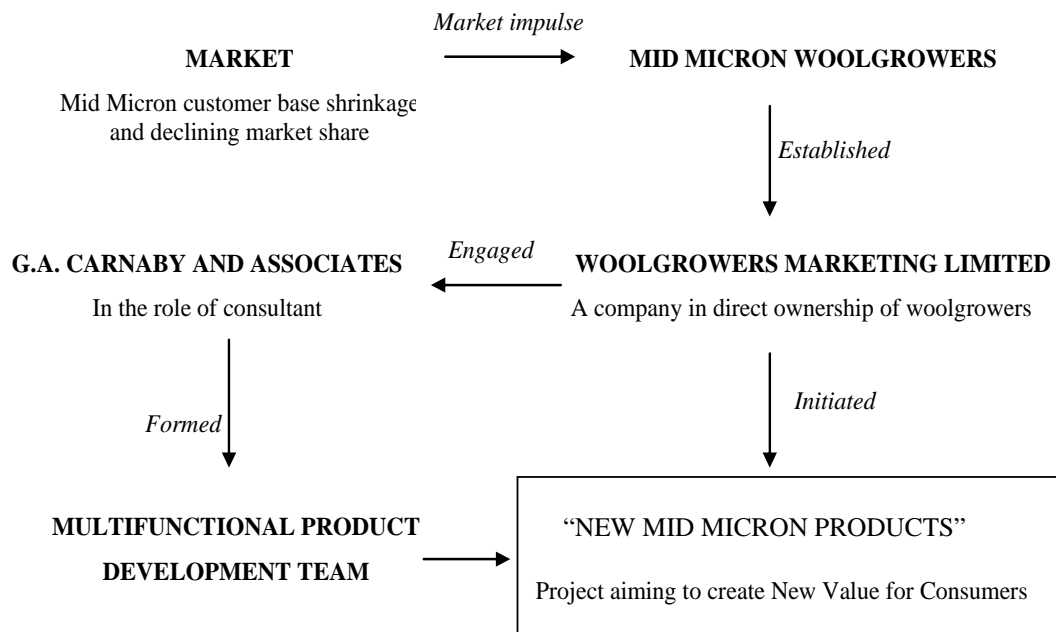
In order to achieve a relatively short time to market with the given resources, the team decided to target an established volume market which carries no major unknowns and to produce knitwear that will compete with currently offered second layer knitwear. Fisherman's Rib Jumpers and Men's Socks fulfilled the requirements for such products with relatively obvious and easy specifications that do not involve complex market research.

The focus on quick development resulted in frequent product development meetings, open communication, and elimination of any unnecessary delays. The benefits of this approach involve the concept of 'doing things right the first time' and efficient information sharing on all levels. However, emphasizing speed in the Mid Micron product development may have had some negative effects as well. If steps such as consumer testing, and detailed planning of distribution and marketing had been undertaken, the outcome may have been decisions informed by more comprehensive information and different specifications for the new Mid Micron products. Figure 5.1

outlines the flow of actions that led to commencement of the “New Mid Micron Products” project.

FIGURE 5.1

**THE FLOW OF ACTIONS THAT LED TO COMMENCING
NEW MID MICRON PRODUCTS PROJECT**



5.2.2 INNOVATION AND NEW MID MICRON PRODUCTS TYPES AND CHARACTERISTICS

As explained in Chapter 3, Mid Micron product development involved the use of apparent micron shift technology to disguise the faults inherent in the Mid Micron fibre and produce knitwear with an improved handle and the equivalent skin comfort to medium fine Merino knitwear. The new yarn structure, when used in knitting, also resulted in reduced drying time, and improved durability and wearing properties of the final Mid Micron products. This may be seen as Product Innovation by the use of new technology to create a completely new solution for consumers.

However, the decision to initially produce jumpers of a traditional rib structure and conventional style has many implications on the development of the Mid Micron value proposition. Because these newly developed jumpers have a similar skin comfort to medium fine Merino products, this indicates the substitute nature of the initial Mid Micron products. This may result in classifying the new Mid Micron

Jumpers as modification, or even ‘me - too imitation’ types. There is a risk associated with how the products will be perceived by consumers, how high is the product newness, and whether there is a new value for consumer at all.

Excellent handle and improved technical performance of the products may be seen as ‘real or unique values’, but since the initial products are conventionally designed jumpers customers may not recognize the novelty or additional value of these products. This implies that the new concept may not succeed unless it is understood, visible and promoted. This is further aggravated when targeting the volume market. The volume market is typically already occupied by many different brands and therefore actually appears to have no real unsatisfied needs.

This concern is also associated with innovation classified as Disruptive Innovation. As is typical for a Disruptive Innovation, the NuYarn Corporation Limited spinning technology existed before the Mid Micron product development opportunity was identified. The NuYarn technology solution motivated Mid Micron Management to search for an opportunity to utilize that know-how. This may have resulted in developing products for fulfilling customer needs that were potentially already satisfied by competitor products.

Since the initial Mid Micron products were not conventionally tested by consumers during the product development process, the market reaction will not be seen until the products are actually launched. These risks and ways to minimise them, will be considered in greater detail as part of the value proposition development.

5.2.3 NEW MID MICRON MARKETING INITIATIVES

Since the use of new technology resulted in improved final product quality, efforts can focus on operational issues of how to capture value from the newly developed products. This section examines focusing on new market segments and supply chain reconfigurations as new Mid Micron marketing initiatives.

5.2.3.1 Focusing On New Market Segments

A marketing initiative of focusing on new market segments via E-Commerce may address a number of the issues associated with the New Zealand Mid Micron Sector, examined in Chapter 2. These are: a long and complex sector structure, customer base shrinkage, and inefficient communication with the final consumer.

With regard to sector structure and the many players involved in transforming the wool into final product, E-Commerce, as a Direct to End Users model, represents an opportunity to bypass the brokers, wholesalers, and distributors, and reach retailers and consumers directly. As a consequence, the final value would not be distributed between so many players, which should mean a larger share of the final product's value is returned to Mid Micron woolgrowers.

With regard to customer base shrinkage and declining demand for Mid Micron wool, E-Commerce may prove to be a convenient and effective channel to reach new customers. As a consequence, the new channel may translate into an efficient tool to rebuild a traditional customer base and build a new customer base.

With regard to the communication problem, E-Commerce is a marketing channel that offers direct communication with the final consumer, fast information sharing, and an opportunity to structure more collaborative communication on all business levels. Direct communication with the final consumer would improve customer focus, and support the final product preparation to meet customer wants and needs.

Besides offering certain advantages, E-Commerce also represents a necessary requirement in order to be competitive with established brands and web enabled businesses. There are important issues to consider relating to online sales, such as:

finding an efficient way to coordinate and physically deliver products while minimising transport charges, identifying uncertainty issues related to returned goods, identifying privacy issues related to security, payments, and contracts, and customer services. These can be addressed by engaging professional web site developers that already have experience and templates for setting up business over the Internet.

5.2.3.2 Supply Chain Management And Reconfiguration

Besides focusing on new market segments, value for consumers may be created through Mid Micron supply chain reconfiguration by building critical core competencies through strong partnerships with channel partners. In this role, supply chain management will strengthen the Mid Micron value proposition for consumers. The imperative for the new Mid Micron chain is to have customer focus and create value at every step of the process.

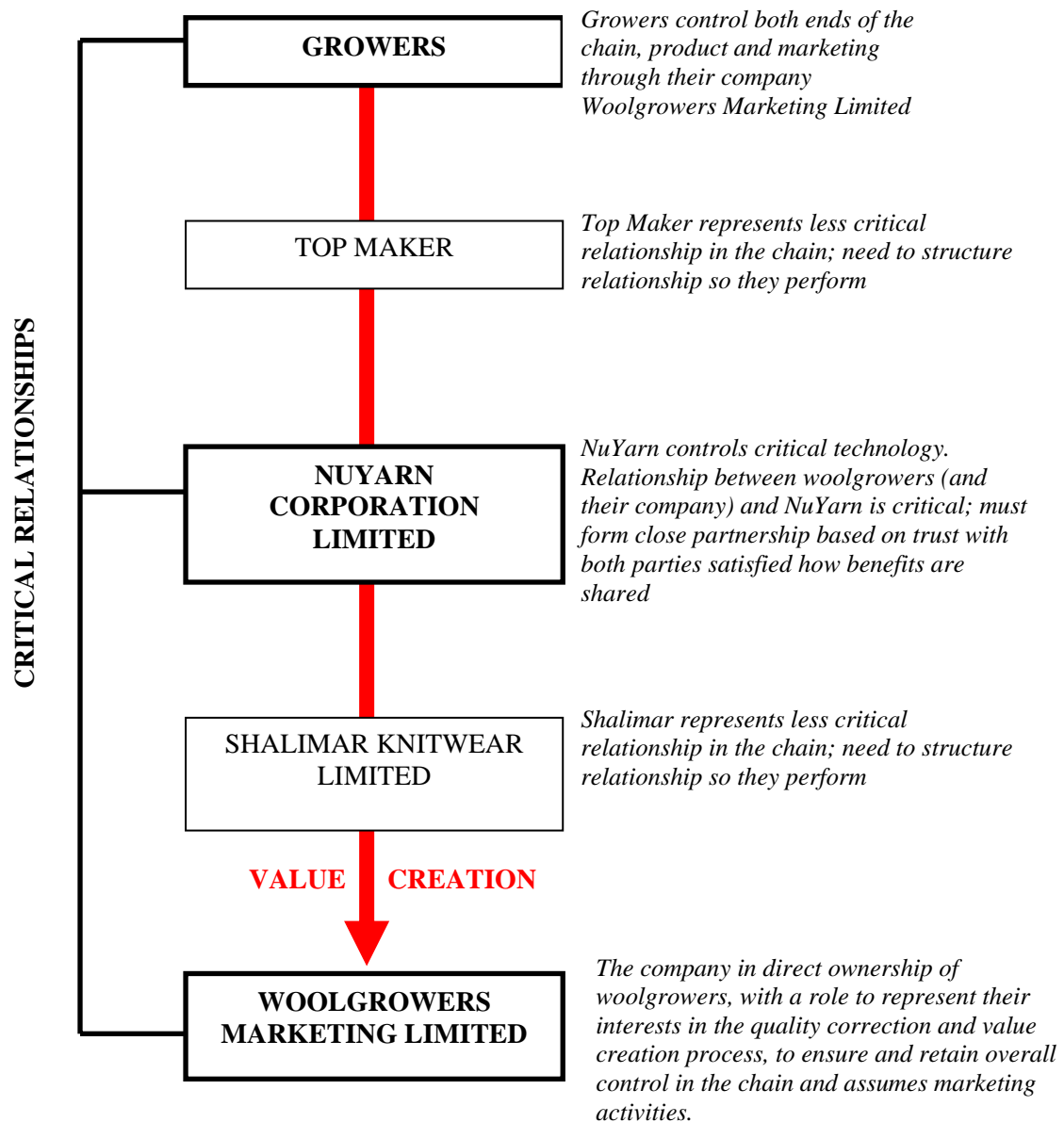
For the purpose of this research, the Supply Chain Management aspects are observed through the relationship dynamics and leadership structure in the chain. These two subjects may address some of the problems associated with the Mid Micron Sector, examined in Chapter 2.

5.2.3.2.1 Relationships Dynamics In The New Mid Micron Chain

Relationship dynamics in the chain are important because the success of the new Mid Micron Business relies heavily on the competencies and strengths that chain participants bring to the chain. The structure of the new Mid Micron value chain involves Mid Micron woolgrowers, the top making processing factory, Nuyarn Corporation Limited, Shalimar Knitwear Limited, and Woolgrowers Marketing Limited. The building of strong partnerships within the chain could begin by identifying partners' strengths and weaknesses, the critical activities and processes that they can perform, and by examining the complementarity of resources and norms they bring to the chain. Figure 5.2 outlines the chain structure and underlines the critical relationships between chain participants.

FIGURE 5.2

THE STRUCTURE OF THE NEW MID MICRON CHAIN AND CRITICAL RELATIONSHIPS IN THE CHAIN

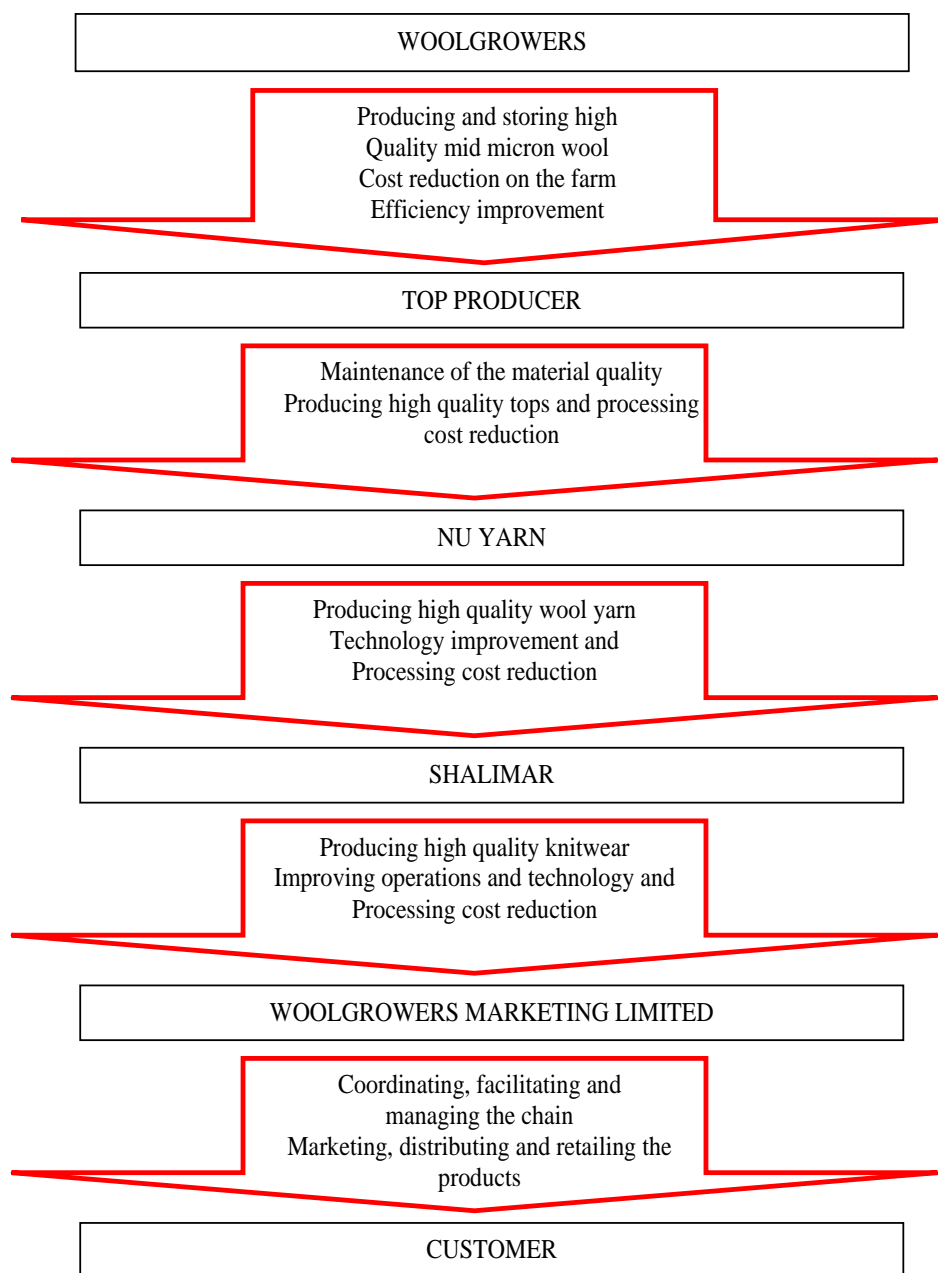


Building strong and committed relationships may address some of the problems associated with the Mid Micron Sector. The first problem is that the most of the value of the existing product made from Mid Micron wool has been created far down the chain at manufacturing and retailing levels. By reconfiguring the value chain, all chain participants could be better linked in the process of value creation for the final consumer. This requires sharing the same vision, benefits, risk, and commitment to

each other's success. The extra value that used to be created by manufacturers, would now be created by chain partners, NuYarn Corporation Limited and Shalimar Knitwear Limited, and the extra value that used to be created by companies that carried out branding and retailing, would now be created by Woolgrowers Marketing Limited. Figure 5.3 presents the partners in the chain and outlines their key activities in a value creation process.

FIGURE 5.3

THE STRUCTURE OF THE NEW MID MICRON CHAIN AND KEY ACTIVITIES IN THE CHAIN



The second perceived problem with the existing chain is thought to be associated with the auction system, which constrains how woolgrowers sell and prepare their wool. This problem may be addressed through bypassing the brokers. However, this has implications for a restructured chain because brokers used to provide storage for the wool. Mid Micron woolgrowers would now have to build an appropriate storage space, meet the required conditions to maintain and control wool quality, and finance extra rates and insurance fees related to storing their wool, until it is needed for processing into tops. This would add extra costs for Mid Micron woolgrowers; however, this bypassing brokers and eliminating their storage charge would be beneficial for the overall business and consequently for Mid Micron woolgrowers as well.

In order to structure successful partnerships and maintain the partnering advantages, it is important to align individual strategies with the overall Mid Micron Business strategy. This leads towards exploring the Leadership Structure in the new Mid Micron value chain.

5.2.3.2.2 Leadership Structure in the New Mid Micron Chain

The Leadership structure in the new Mid Micron chain is very important as it addresses the attempt of Mid Micron woolgrowers to assume control over their products and business. The leader in the reconfigured Mid Micron chain should be capable of recognizing, stimulating and realizing optimum collaboration between chain partners.

There are potentially two strong players in the new Mid Micron chain. On one hand, there is Woolgrowers Marketing Limited, who represents Mid Micron woolgrowers, and who provided motivation for the project and who must to benefit from it. On the other hand, there is NuYarn Corporation Limited, who is the owner of the critical know-how (the micron shift technology) that is required for the realization of the project.

Woolgrowers Marketing Limited may have the positional power arising from the placement, functions and activity the company has in the chain. This allows the company to access information at every level of the chain functioning. There is also

the economic power through the potential concentration of capital from company shareholders, Mid Micron woolgrowers.

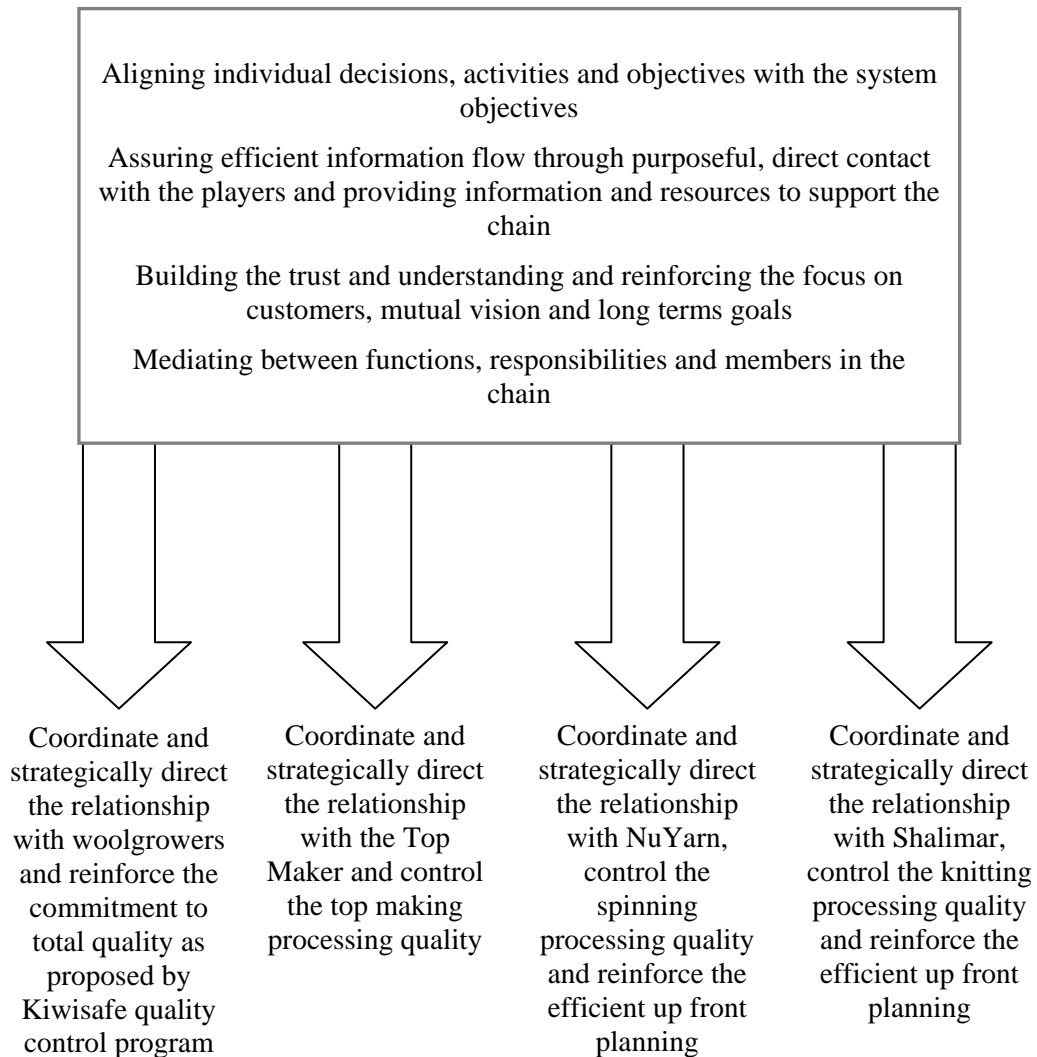
Woolgrowers Marketing Limited may be able to effectively manage a new chain by developing a combination of skills, and providing information and resources. This supports the concept that, in order to emerge as a Chain Leader, a chain player does not need the ability to control the chain, but needs the ability to facilitate organizations and to coordinate some or all of the decisions and activities, to maximize the final customer value.

As Chain Leader, Woolgrowers Marketing Limited would need to demonstrate the necessary leadership skills and responsibilities. Some of those responsibilities and skills involve: establishing purposeful, direct contact with key players; pursuing the information sharing among partners to increase efficiency of the whole chain and allocate resources in the most effective and efficient ways according to the interest of the whole supply chain; modelling and redesigning strategy in accordance with complex, diverse and continuously changing customer needs and behaviour; building a strategy for adequate planning at the supply chain level that includes defining and mediating between functions, responsibilities and members in the chain, to reach its full potential; and aligning the decisions, activities and objectives of individual supply chain members with the system objective in order to manage the whole supply chain as one business.

Figure 5.4 presents the possible Chain Leader's roles and responsibilities in the new Mid Micron chain. They are presented in two groups; the first group covers the roles and responsibilities on a system level, that is, the ones the Chain Leader applies towards all partners. The second group contains explicit Leader's roles and responsibilities with regard to specific partner in the chain.

FIGURE 5.4

**CHAIN LEADER'S ROLES AND RESPONSIBILITIES IN THE
NEW MID MICRON VALUE CHAIN**



All the issues discussed in this section should be the subject of further study. Research is required to examine how to manage the reconfigured Mid Micron value chain, focusing particularly on how Woolgrowers Marketing Limited may emerge as a Chain Leader and maintain his leadership, managing the critical relationship with the spinner, developing a distribution network, bypassing the auction system and the associated possibility of adopting Just-In-Time inventory management method.

5.3 IDENTIFYING ALTERNATIVE MID MICRON VALUE PROPOSITION MODELS FOR CONSUMERS

5.3.1 IDENTIFYING THE GUIDING VALUE PROPOSITION CONCEPT

A theory about customer focused philosophy presented in Section 4.2.2 explained that a quality product and its tangible product characteristics are a necessary requirement for developing a strong value proposition for consumers. In the case of Mid Micron products, this requirement is met through product development to improve the final products' softness, handle, durability and reliability. However, the tangible values are not a stand-alone requirement. To evaluate the total experience offered to consumers, or the completed value proposition, it is important to examine intangible product values, such as exclusivity, originality, convenience, image, customer service and support, and cost. In this thesis, the approach taken is that the elements of the new Mid Micron value proposition should reflect potential strengths and competencies of the future Mid Micron Business, and this approach will now be analysed.

5.3.2 IDENTIFYING ALTERNATIVE OPTIONS FOR MID MICRON BUSINESS

Section 4.3 described the alternative value proposition models, Operational Excellence, Product Leadership and Customer Intimacy, that can be used to embrace a company's strengths and competencies. While analysing which model provides a good fit with the Mid Micron Business strengths and competencies, the main considerations are: the competitive market scope of each alternative value proposition model, and how this fits with Mid Micron sought-after market scope, and the type of products associated with each value proposition model, and how this matches up with the newly developed Mid Micron products.

With regards to market scope, the "New Mid Micron Products" project plans to create a business that will allow all interested Mid Micron woolgrowers to participate. This implies dealing with large amounts of Mid Micron wool, which will need to be marketed, and suggests the need to consider models with a wide competitive scope.

The Operational Excellence and Product Leadership propositions typically focus on building a reasonable market share and targeting a substantial customer base, by seeking a cost or differentiation advantage. On the other hand, the Customer Intimacy proposition focuses on targeting a narrow and well defined segment of a market. This narrow competitive scope does not appear to be consistent with the sought-after market scope of the Mid Micron Business.

With regards to product type, Operational Excellence is associated with a standardized and widely acceptable product, and Product Leadership is associated with a differentiated product that has wide appeal. Contrary to this, companies pursuing Customer Intimacy seek for an advantage in the particular market segment by developing a customised product to fit specific customer needs. The initial Mid Micron products, that have been developed, (described in previous section), are not a good fit with a Customer Intimacy approach since they do not target specific customer wants, but are aimed to target a volume market and utilise a conventional design. Therefore, the Customer Intimacy proposition model will not be considered further, and remaining discussion is focused upon the Operational Excellence and Product Leadership propositions.

Three companies with business methodologies that may be used as examples to portray successful practice in the current textile industry of New Zealand are Norsewear of New Zealand Limited, Swandri New Zealand Limited, and Snowy Peak Limited. Norsewear and Swandri will be used to examine a price range for medium Merino and other second layer knitwear, and all three companies will be used to examine image differentiation and brand building strategies.

Norsewear is promoted as a 100% New Zealand owned and operated design, marketing and manufacturing company. The value proposition for consumers is based around quality outdoor clothing made from a range of materials from Merino wool to high-tech man made fabrics. The company has been present in the New Zealand market since the 1960s and advertises hard-wearing, rugged and dependable garments. The company image is built on emphasizing true social conscience and the New Zealand Natural Clothing label made to high manufacturing standards to achieve customer satisfaction (Norsewear of New Zealand Limited, 2007).

Swandri New Zealand Limited is a company promoted as a New Zealand clothing manufacturer of high performance, quality apparel. Initial products were developed as work clothing made from 100% pure New Zealand wool and were known for their durability and practicality. This image and associated values stressed family, honesty, longevity, comfort and protection, and has been maintained through the years (Swandri New Zealand Limited, 2007).

Snowy Peak Limited is publicized as an internationally successful design house producing highest quality garments. Snowy Peak's value proposition for consumers involves high quality, luxury fibre blend clothing of innovative natural materials, superior finish and fashionable designs. The company's image is built on environmental and social awareness values emphasizing the ideal of a healthy, vital and dynamic unit of people and nature (Snowy Peak Limited, 2007).

5.4 OPERATIONAL EXCELLENCE

The following sections examine the Operational Excellence value proposition model as it relates to the Mid Micron Business. The aim is to explore the sources to achieve cost advantages and explore the value proposition elements, price, products and delivery to market.

5.4.1 DEVELOPING A MID MICRON COST ADVANTAGE

The new Mid Micron product development and marketing initiatives may be seen as combining Product Innovation and Operational Innovation as defined in Section 4.2.3. The Mid Micron product development is supported with initiatives of focusing on new market segments and reconfiguring the value chain aiming to eliminate inefficiencies and cut costs, and this way create a cost competitive advantage in the market. This is the link to the Operational Excellence value proposition model, and the associated Cost Leadership strategy. There are three principle sources that may lead to a favourable Mid Micron cost position and justify a discounted pricing strategy. They are: preferential access to raw material (Mid Micron wool), an exclusive right to use a unique technology solution, and a new supply chain configuration.

The first source of cost advantage emanates from the specific position of Mid Micron woolgrowers within the new value chain. This position may guarantee preferential access to Mid Micron wool and long-term cheaper price contracts on raw materials. John Stevens (Shalimar Knitwear Limited, Personal Communication, May 2006), an experienced knitter and retailer for a wide range of knitwear, found that the price of yarn is as high as 40% of the price of a finished garment. This implies that reducing the cost of raw materials may significantly increase the net returns for the overall Mid Micron value chain. Raw material costs may also be reduced by exploring the use of cheaper continuous filaments such as cotton bungee or Spandex in the spinning process, instead of the currently used nylon (David Lee, NuYarn Corporation Limited, Personal Communication, September 2007).

The next source for cost advantage may be a preferential access to unique spinning technology. This relates to a specific yarn structure, developed in the partnership with NuYarn Corporation Limited, being exclusively available for spinning Mid Micron wool. The sole rights over this technological template will assure rarity in the market, and competitors will not be able to use the same technology to copy the yarn structure for the same cost.

Another cost advantage may be realized as a result of chain reconfiguration. Mid Micron woolgrowers control both ends of the chain, being placed at the beginning of the value chain, as wool producers, and at the end of the value chain, through their company Woolgrowers Marketing Limited. This structure may assure control over the production process and operations contributing to cost reduction. The intention is to eliminate inefficiencies in the chain, assure the control of costs, and assure control over the flow of the physical goods in the production process, processing prices, margins and final profit.

5.4.2 PRICE OF MID MICRON PRODUCTS IN THE OPERATIONAL EXCELLENCE MODEL

As presented in Section 4.3.2, adopting the Operational Excellence value proposition, implies focusing on the best combination of product quality, product price and ease of purchase for consumers. However, the key for increasing the new Mid Micron products' value for consumers is through a discounted price when compared with Merino products and other second layer knitwear of equivalent skin comfort, or same or discounted price when compared with other second layer knitwear of substandard skin comfort. Establishing an appropriate discounted price for the new Mid Micron products means finding a rate that will be lower than the rate charged for competitors' products of the same class and yet profitable for the Mid Micron value chain.

Considering that on New Zealand farms, Mid Micron woolgrowers are turning towards meat production and are selling wool as a by-product, the overall "New Mid Micron Products" project intends to improve Mid Micron woolgrowers' position in the industry. This requires establishing a price for final products that has to assure at least sustainable net returns for Mid Micron wool as a raw material.

Because of the different net returns on meat and wool as two products from one animal, there are arguable variations in the way costs are allocated to wool production. General Manager for Mid Micron New Zealand Incorporated, Alan Gallagher (Woolgrowers Marketing Limited, Personal Communication, March 2006), who knows the market and maintains a close connection with woolgrowers, estimated that if the costs are split 50/50 between wool and meat, Mid Micron woolgrower's cost production per kilogram of wool is \$5.00. This cost does not include interest and other finance costs that can vary markedly between farms.

By auctioning the wool, Mid Micron woolgrowers acquire an average price of \$5.65 per kilogram for wool of 28 microns (Alan Gallagher, Woolgrowers Marketing Limited, Personal Communication, March 2006). This price just covers basic costs of production, and is certainly not rewarding woolgrowers for their efforts and time invested on farms.

In his Project Leader role in the “New Mid Micron Products” project, Alan Gallagher suggested that Mid Micron woolgrowers should aim to achieve a sustainable price of \$7.00 per kilogram or more. Besides reaching this price premium for their wool, Mid Micron woolgrowers may also benefit from the final value of the finished products because of their ownership of Woolgrowers Marketing Limited.

In the process of creating a new Mid Micron value proposition for consumers, it is important to include the elimination of many of the quality problems that are currently introduced on farms and between the farms and the manufacturers. This initiative can be seen as part of the supply chain reconfiguration and involves improving farm management and customer focus on farms. This may be possible by implementing a quality control program named Kiwisafe among all Mid Micron woolgrowers (Alan Gallagher, Woolgrowers Marketing Limited, Personal Communication, March 2006).

The Kiwisafe quality program represents a promise to produce wool that measures up to precise specifications, control and ensure quality, uniformity, and high product standards. It is a customer focused program aiming to reach customer’s satisfaction, maintain market credibility and integrity, and ensure conformance of world’s best practice. Woolgrowers need to embrace the practice of a quality management system and undertake steps to prevent, plan, specify, and take corrective actions needed to better present their product (Kiwisafe Manual, 2006) in order to share the benefits of the raw wool premium and of the final Mid Micron products.

Another requirement for woolgrowers may involve them providing an appropriate storage facility for the produced wool and having it ready to deliver at the time it is needed for top making. This may be necessary as part of the chain reconfiguration in an attempt to bypass the auctioning system and brokers that used to provide storage for the wool in the past.

Besides the established \$7.00 price for the raw wool, further critical costs associated with producing Mid Micron knitwear involve top making and dying, spinning the tops into yarn and knitting into the finished product. Table 5.1 presents the costs of production for one new Mid Micron Fisherman’s Rib Jumper.

TABLE 5.1

**COSTS ASSOCIATED WITH THE PRODUCTION OF ONE
NEW MID MICRON JUMPER**

	Cost	Cost for processing 0.85 kg wool as required for average jumper
Woolgrower	\$7.00 per kg	\$5.95
Top Making and Dying	\$15.00 per kg	\$12.75
Nuyarn – Spinning	\$30.00 - \$35.00 per kg	\$25.50
Shalimar – Knitting	\$25.00 - \$35.00 per garment	\$25.00
TOTAL COST		\$ 69.20

Source: G.A.Carnaby and Associates Limited, Shalimar Knitwear Limited
(Personal Communication, March 2007)

One jumper is produced with approximately 0.85 kilograms of raw wool, which at \$7.00 per kilogram costs \$5.95. A kilogram of wool is dyed and made into top for \$15.00, and NuYarn Corporation Limited charges between \$30.00 and \$35.00 to spin one kilogram of raw wool into yarn (Garth Carnaby, G.A. Carnaby and Associates Limited, Personal Communication, March 2007). Shalimar Knitwear Limited's knitting price varies for different styles of knitwear, from \$25.00 to \$35.00 (John Stevens, Shalimar Knitwear Limited, Personal Communication, March 2007). Using the lowest spinning and knitting prices, as expected due to the volume of business in the Mid Micron value chain, this gives a rough cost estimate for one jumper of \$12.75 for dying and top making, approximately \$25.50 for spinning, and \$25.00 for knitting, which, along with the raw wool cost, totals \$69.20 for one Mid Micron Jumper.

If Woolgrowers Marketing Limited takes on the role of creating a brand, and promoting, distributing and retailing the products, then all the value of the finished product will be created inside the chain. Decision about the final price and margins should be set up so it is sufficient to cover the discussed production cost and the

remaining costs of marketing and promotion, and storage and logistics. Any economic value added to the company would belong to the woolgrowers as owners.

5.4.3 COMPETITORS' PRICE

In order to be an above-average performer with price set at or near industry average, it is important to examine competitors' price ranges. Table 5.2 presents approximate prices for different classes of products offered by Norsewear of New Zealand and Swandri New Zealand.

TABLE 5.2
COMPETITORS' PRICES FOR DIFFERENT CLASS OF PRODUCTS

	PRODUCTS		
	Low-priced	Middle-priced	High-priced
NORSEWEAR	\$80.00 - \$110.00 for 65/35 blend recycled wool and nylon \$120.00 - 100% wool	\$140.00 - \$160.00 for 100% Merino \$150.00 for 100% lambs wool \$160.00 – 100% wool	\$180.00 – for 60/40 blend Merino and Alpaca and 100% wool
SWANDRI	\$80.00 for 80/20 blend wool and nylon \$110.00 wool blend	\$160.00 - \$180.00 for midweight Merino \$180.00 for wool blend	\$200.00 - \$225.00 for Designer's 100% mercerized wool \$230.00 for Designer's wool/Cashmere blend knitwear \$350.00 - \$390.00 for Designer's Cashmere knitwear

Source: Norsewear of New Zealand Ltd (2007); Swandri New Zealand Ltd (2007)

The web sites of Norsewear of New Zealand, and of Norseshop which is an authorised reseller of Norsewear clothing and accessories, offer cheaper products made from a wool/nylon blend between \$80.00 and \$110.00, and lower priced 100% wool jerseys

for \$120.00. 100% wool garments and Merino jerseys in the middle price range are between \$140.00 and \$160.00. Products with blended Merino and Alpaca wool are priced around \$180.00 (Norsewear of New Zealand, 2007).

Catalogue prices for Swandri's knitwear are in a wide range between \$80.00 and \$390.00 depending on material and design. Cheaper products are offered in the range \$80.00 to \$110.0, but most of the traditional Swandri products and designs are middle priced, in the range \$160.00 to \$180.00. The latest exclusive product line, created by fashion designer Karen Walker, has a premium price in the range \$200.00 to \$390.00 (Swandri New Zealand Limited, 2007)

Examining competitors' prices revealed that prices of Norsewear and Swandri vary more with regard to product designs and ultimate fabric feel, than with regard to the origin or combination of fibres. Among the examined products, it is possible to isolate competitors' products of a similar class to the new Mid Micron Fisherman's Rib Jumpers. Table 5.3 presents competitors' products in the lower and middle price groups and with respect to each group, proposes the potential place of the Mid Micron Fisherman's Rib Jumper.

TABLE 5.3

**POSITIONING NEW MID MICRON FISHERMAN'S RIB JUMPERS AGAINST
LOWER AND MIDDLE PRICED COMPETITORS' PRODUCTS**

	LOWER PRICED PRODUCTS	MIDDLE PRICED PRODUCTS
NORSEWEAR	Stockman Crew Jersey	Rib Jersey
	\$84.99	\$149.98
SWANDRI	Commander Jersey	Ashhurst Jersey Bonded Wool
	\$110.00	\$179.00
MID MICRON	New Fisherman's Rib Jumper	
	\$70.00 – \$90.00	\$120.00 - \$140.00

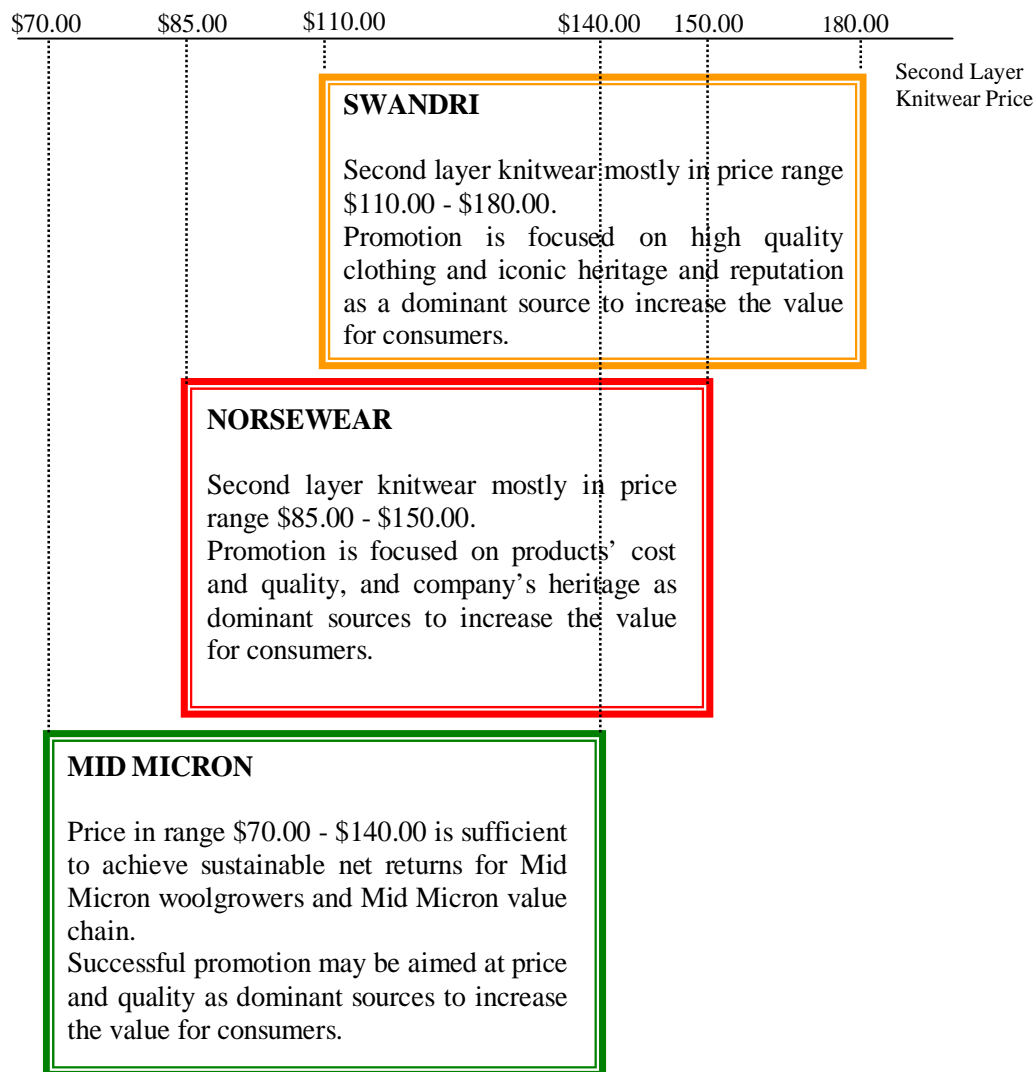
Source: Norsewear of New Zealand Ltd (2007); Swandri New Zealand Ltd (2007)

As suggested in Table 5.3, firstly, the Fisherman's Rib Jumper may be able to position against lower priced competitors' products, that is, to compete with second layer products priced between \$85.00 and \$110.00, by offering better quality for the same or lower price, for example, in the range \$70.00 to \$90.00. Considering that \$70.00 charge just covers basic Mid Micron production costs, further calculations are needed to determine the lowest products' price. Compared with the products in this group, Mid Micron Jumpers would exceed customer expectations by feeling better and costing the same or less. This indicates the potential to develop the competitive advantage: "more value for same or less money" (better products for same or lower price).

Secondly, the Fisherman's Rib Jumper may be able to position against middle priced competitors' products, that is, to compete with Merino products priced between \$150.00 and \$180.00, by offering a discounted price, for example, in the range \$120.00 to \$140.00. Compared with products in this group, Mid Micron Jumpers would feel indistinguishable, with the equivalent, excellent feel and performances. This would result in meeting consumer expectations, while at the same time exceeding customer expectations by offering a cheaper price, indicating the potential to develop the competitive advantage: "same value for less money" (just as good products for lower price).

Figure 5.5 shows these two positioning options. Priced between \$70.00 and \$140.00, new Mid Micron Fisherman's Rib Jumpers have an opportunity to become an approximately 20% cheaper option to comparable second layer knitwear from Norsewear of New Zealand and Swandri New Zealand. If successful, the cost leading strategy should translate into higher returns for Mid Micron woolgrowers and the Mid Micron value chain due to volume of business.

FIGURE 5.5
COMPETITORS' PRICE RANGE FOR SECOND LAYER KNITWEAR



5.4.3.1 Risks Associated With A Discounted Price Strategy

One of the common problems associated with a discounted pricing strategy is if a low cost method can be easily imitated by competitors. In the case of the Mid Micron Business this can be prevented by securing the exclusivity of the relationships with the owner of the critical technology and through the differentiated structure of the value chain.

There are three potential risks related to discounted price strategy when launching the new Mid Micron products. The first one relates to a possible declining of consumer's sensitivity to price, which would nullify the attractiveness of the Mid Micron value proposition. A similar problem would occur if competitors follow price cutting as a tactic to maintain their market share. This would lead to a price war that could erase Mid Micron's advantage, leaving customers as the only winners. With regard to this, Mid Micron wool has an advantage of having lower production cost when compared with the production cost associated with the Merino wool. This implies that although a competitor may use a price cutting strategy to meet Mid Micron discounted price, price cutting would be limited due to Merino production costs. A further challenge associated with a discounted price is if the price is used by consumers as an indication of quality. This should be overcome through brand building that will educate the market about the quality of the new Mid Micron products.

5.4.4 MID MICRON PRODUCTS IN THE OPERATIONAL EXCELLENCE MODEL

New Mid Micron products can be defined as good quality knitwear with excellent handle and equivalent feel to medium fine Merino knitwear. Besides featuring all the inherent positives of wool, the new products have improved technical characteristics due to the new yarn structure.

It is typical for the Operational Excellence model to emphasize every opportunity leading towards achieving and maintaining a cost advantage. This principle has its effect on decisions about product development (for example, decisions about product type, characteristics, design) and product management (for example, decisions about target market, brand building and investment strategy).

In order to maintain a cost advantage and reduce the cost per unit of production, the Mid Micron Business under Operational Excellence should have a limited range of products. This implies the need to find a successful Mid Micron knitwear design, as a type of product standardization that may result in reliable and continual market demand. A Fisherman's Rib structure for jumpers fits this assessment as it represents a traditional and widely accepted knitwear design.

Since the initial Mid Micron products were chosen while focusing on a short time to market, there is a certain risk that critical product specification, that can assure the right quality to address the market's needs, might have been overlooked. Knowing that technical advantages of the new Mid Micron yarn can result in high skin comfort, better reliability and durability, shorter drying time and better wearing performances, it is appropriate to question if these advantages are undervalued in the case of the initially chosen Mid Micron products.

The described characteristics of the Fisherman's Rib Jumpers will be used to target the middle of the market, where demand is big and customers are more interested in cost than in choice. However, in order to achieve parity or proximity on the basis of differentiation relative to its competitors, it is important to consider how to differentiate new Mid Micron products apart from a discounted price. This represents a first step in Mid Micron brand building, which should educate consumers about the inherent positives and the improved performances.

With regard to promotional expenses and investment strategy, the Operational Excellence model suggests limited expenses and low investment. The low investment principle is one of the main reasons for considering using this model to launch the newly developed Mid Micron products.

5.4.5 DELIVERY IN THE OPERATIONAL EXCELLENCE MODEL

The final aspect of the Operational Excellence value proposition is related to the way the products are delivered to market. The aspects of delivery are already considered as part of New Marketing Initiatives in Section 5.2.3. Although some of the discussed aspects will not significantly differ between Operational Excellence and Product Leadership, some of the associated advantages and disadvantages have different implications for the two models.

The principles of focusing on new market segments through building E-Commerce, discussed in Section 5.2.3.1, can be consistent with many of the principles of the Operational Excellence model. The most significant is the opportunity to reduce the costs of conducting business and investing low capital to penetrate the market. As a direct marketing channel, E-Commerce may be used to identify cheaper business

options and to exploit the benefits of fast communication. E-commerce represents a low capital option to penetrate a market compared to the investment needed to own a retail store.

Another positive of E-Commerce is the opportunity to conduct business at all hours of the day, every day of the year. This will support the company's effort to approach a wide target market and to be competitive with Web enabled businesses.

The principles of reconfiguring the value chain, discussed in Section 5.2.3.2, by focusing on relationship and leadership dynamics will have implications on the way the new products are delivered to market. The most significant is the opportunity to position Woolgrowers Marketing Limited as the key drive in the new chain. As the key drive in an Operational Excellence business model, Woolgrowers Marketing Limited should focus on increasing productivity through reducing the cost for consumers. This may be easier to achieve by constructing a centralized operating model. Woolgrowers Marketing may try to utilize daily planning at the supply chain level to allocate resources in the most efficient and effective manner according to the interests of the whole supply chain. It has to find a way to optimize the end-to-end order fulfilment process, and improve the system and processes to achieve the lowest cost. A successful approach may commence with structuring a good information flow in the chain and standardization of the supply chain system.

5.4.5.1 The Risk Of Using E-Commerce As An Exclusive Mid Micron Marketing Channel Within Operational Excellence Model

When considering the risks of using E-Commerce as an exclusive marketing channel within the Operational Excellence model, the most significant is the risk associated with the potential to reach the wide market scope. While E-Commerce provides a direct and convenient way of reaching consumers, and addresses the problem of the long and complex traditional structure of the Mid Micron value chain, current market leading companies use this marketing channel as an additional sale format to supplement traditional retail stores.

There is a concern whether E-Commerce, if it is the sole marketing channel for the new Mid Micron Business, is capable of reaching a sufficient share of the market. It may be prudent to consider other options to extend the reach and develop as wide a distribution network as possible. It may not be possible for the Mid Micron chain to open their own retail stores, so an option may be to approach established retailers that are already serving the targeted middle market segment, for example, the Postie Plus Group Limited or Farmers Trading Company

Postie Plus Group Limited includes chains of Postie Plus, specializing in men's, women's and children's clothing; Arbuckle's, a manchester specialist; and Baby City, a baby product retailer. These stores focus on promoting a wide range of quality products, good service, and a good price for customers. Stores include different brands that bring quality manufacturing at affordable prices (Wood, 2007). The relevance for the Mid Micron Business is the broad market share reached through 110 stores in New Zealand that targets 'middle New Zealand' offering 'value for money' across all age groups.

Farmers Trading Company represents the fashion department store in New Zealand for nearly 100 years, combining quality and a wide range of domestic and international brands. The business has over 55 department stores in rural and city locations nationwide (Farmers Trading Company, 2007).

Both, Postie Plus Group Limited and Farmers Trading Company aim to serve a well defined middle of market and to offer a wide range of products. In favour of retailers like this are their efforts to reduce seasonality and minimise the effects of fast-moving changes in fashion (Postie Plus Group Limited, 2007) that is consistent with product standardization as proposed by the Mid Micron Operational Excellence alternative. Also, Postie Plus Group promotes selling a number of products that maintain popularity from year to year, and maintains direct sourcing from suppliers forming good and longstanding relationships. They have efficient logistics and information systems, and well located stores, as well as benefiting from centralised management (Postie Plus Group Ltd, 2007), which is also consistent with Operational Excellence operating models.

5.5 PRODUCT LEADERSHIP

The following sections examine Product Leadership as it relates to the Mid Micron Business. The aim is to explore the sources to create product differentiation and explore the value proposition elements, products, price and delivery to market.

5.5.1 DEVELOPING MID MICRON DIFFERENTIATION ADVANTAGE

The “New Mid Micron Products” project is based around combining Product Innovation and Operational Innovation to improve Mid Micron yarn. A more detailed look reveals that the use of new technology has resulted in a completely new yarn structure that, when used in knitting, produces a new knitwear type with improved technical characteristics. This uniqueness of the yarn and final products, may be seen as a New Market Innovation process, and represents the link to the Product Leadership value proposition model and the associated Differentiation strategy. This is further reinforced by the exclusive relationship between Woolgrowers Marketing Limited and the spinner who holds the technology, which is thought to result in a differentiated value chain that can not be easily imitated by competitors.

5.5.2 MID MICRON PRODUCTS IN THE PRODUCT LEADERSHIP MODEL

As explained in Section 4.3.3, adopting the Product Leadership value proposition model for the Mid Micron Business implies focusing on offering a product as unique value for consumers. The centre of attention is increasing the value for consumers by differentiating products beyond the price platform. The potential source to achieve a differentiation advantage may be the unique spinning technology embodied in the design of the new Mid Micron yarn. The potential to use this source is linked with the type and characteristics of the initial Mid Micron products.

The initial Mid Micron products, Fisherman’s Rib Jumpers, have a conventional design and a traditional rib structure, and an equivalent feel as medium fine Merino knitwear. Due to the described characteristics, the new Mid Micron Jumpers may be difficult to differentiate on the basis of tangible characteristics. This means that yarn structure, as an exclusive point of difference, may not provide a clear reason for

consumers to prefer Mid Micron products over competitor products because they are not likely to recognize the products' novelty or additional value.

Another problem may be associated with the up market target segment, typically targeted by Product Leaders. Targeting the up market segment means the new Mid Micron Jumpers have to compete with knitwear of recognizable labels, and with companies with established brand identity and customer loyalty. The competitors' advantage is a result of investing and advertising in the past and at the present.

The nature of the target market may be seen as the most significant risk associated with developing the Mid Micron value proposition under the Product Leadership model. In order to successfully follow Product Leadership principles, it is important to question if the new Mid Micron Business has needed competence and knowledge, resources and operating model structure, to adopt this business route and target the up-market target segment. This segment is associated with a demand which dictates a need for fast reaction time, creativity and innovation to keep up with fast changing fashion trends and competitor moves.

The characteristics of the new Mid Micron products and target market imply that in order to adopt the Product Leadership model, it may be critically important for the Mid Micron Business to focus on differentiating the products' intangible characteristics. This approach involves developing a strong brand identity which may increase the products' perceived value in the market.

5.5.2.1 Developing A Mid Micron Brand

Although the developed, unique Mid Micron yarn structure is a completely new solution for wool, as far as customers can tell, the Mid Micron Jumpers may be seen as identical to existing conventionally designed knitwear. Also, the Mid Micron Jumpers' handle and feel properties may be assessed as equivalent to products made from medium fine Merino or man made fibre knitwear.

Developing the new Mid Micron brand should be looked at as developing one of the most important company assets for the future. The brand should be used to introduce the Mid Micron Business to the market and educate consumers about the value their

products can bring, incorporating the company's promise to achieve full customer satisfaction.

Theoretically, the new Mid Micron products, as apparel products, can be differentiated along a functional dimension and along an emotional dimension for consumers. The functional dimension is not the strongest point for the initial Mid Micron products due to the type of initial products, but may involve developing, for example, an image of comfort fashion, high performing knitwear, style and figure flattering clothing, combined with easy care and reliability. The emotional dimension may become a dominant building block for the new Mid Micron brand.

Focusing upon the emotional values for consumers is likely to require a high investment into advertising and promotion in order to convince the customer about the value of the new products. Customers typically targeted by Product Leader companies strive to achieve individuality and buy clothing that is somehow different, rare or exclusive, and that delivers a statement about their lifestyle. In order to understand how to differentiate products along these considerations, it may be useful to examine the practices used by Norsewear of New Zealand Limited, Swandri New Zealand Limited and Snowy Peak Limited.

5.5.2.2 Competitors' Brands

Swandri New Zealand Limited and Snowy Peak Limited companies may be used as examples of companies focused on psychological considerations as a fundamental principle in brand promotion. Both companies have established strong image differentiation in the apparel segment. The critical aspects of their brands are messages or stories to symbolize their identities.

Swandri clothing was initially promoted as a brand for reliable and purposeful bushman and workman clothing. This may be seen as a promotion focused on the functional dimension of the products. The Swandri brand shifted from representing practical clothing into representing stylish, original, fashionable clothing of high quality and unique performance. This may be seen as promotion refocused towards the emotional dimension of the products.

Today, Swandri represents an iconic New Zealand brand for authentic and original clothing that targets the national and global market (Swandri New Zealand Limited, 2007). This strategy has been recently further underlined through partnering with high fashion designer, Karen Walker, to create a unique lifestyle collection. New Swandri plans to bring together heritage, portraying reliability, quality, and durability, with a new face for modern and original design ideas (Swandri New Zealand Limited, 2007).

The Snowy Peak brand is promoted as a powerful brand for the highest quality clothing. The underlying story is about the inspired merge of nature and science to describe the target customer's lifestyle and luxury, original, exclusive, soft, and warm clothing. Snowy Peak adopted a high capital investment strategy, in particular to push out the Untouched World brand for the highest quality Merino products. Untouched World is known as a differentiated type of knitwear that often combines Merino wool and Possum mink to produce a modern design, the finest skin comfort, and excellent performance (Snowy Peak Limited, 2007).

Although both companies seem to follow Product Leadership principles, Snowy Peak is more clearly aimed at the up market segment with its premium pricing strategy, while Swandri keeps a more extensive range of products to serve both the middle and up market segments. Both companies have built an image differentiation for their products, and their successful branding practice may be used as a guide for developing the new Mid Micron brand.

5.5.2.3 Option To Develop A Mid Micron Brand

In order for customers to recognize Mid Micron's offer as a new solution to consumers, and develop this advantage into a central point of difference for the new Mid Micron products, the concept has to be explained through a focused marketing effort. One option is to develop a similar image differentiation to Norsewear, Swandri or Snowy Peak, and support this with adequate investment in promotion. As with its competitors, there is a need to develop a story, or underlying message behind the brand.

Figure 5.6 is developed in an attempt to position Mid Micron branding strategy with regard to competitors' branding strategies. This story should bring together emotional and physical values of the products for consumers while leaning more towards emotional consideration for consumers. The brand should also portray a certain exclusivity and luxuriance in order to compete with companies as Swandri and Snowy Peak. Potentially the story may be shaped around two aspects: the quality of Mid Micron wool, and the quality of the finished products and embodied technology.

Mid Micron wool itself, as a quality product input originated in New Zealand, can be used as a basis to differentiate the finished products. For this purpose, marketers could use the Kiwisafe trade mark which gives the potential to negotiate a premium price for a secure supply of consistent specification. Mid Micron wool may be associated with the Corriedale sheep breed, which was New Zealand's first indigenous sheep breed, and a true and original product of New Zealand. This can evoke feelings of pride, an individual sense of identity and personal worth for New Zealand customers, and positive feelings for global customers due to the good image New Zealand has as a country. The products would be recognized as natural, chemical free, and environmentally friendly.

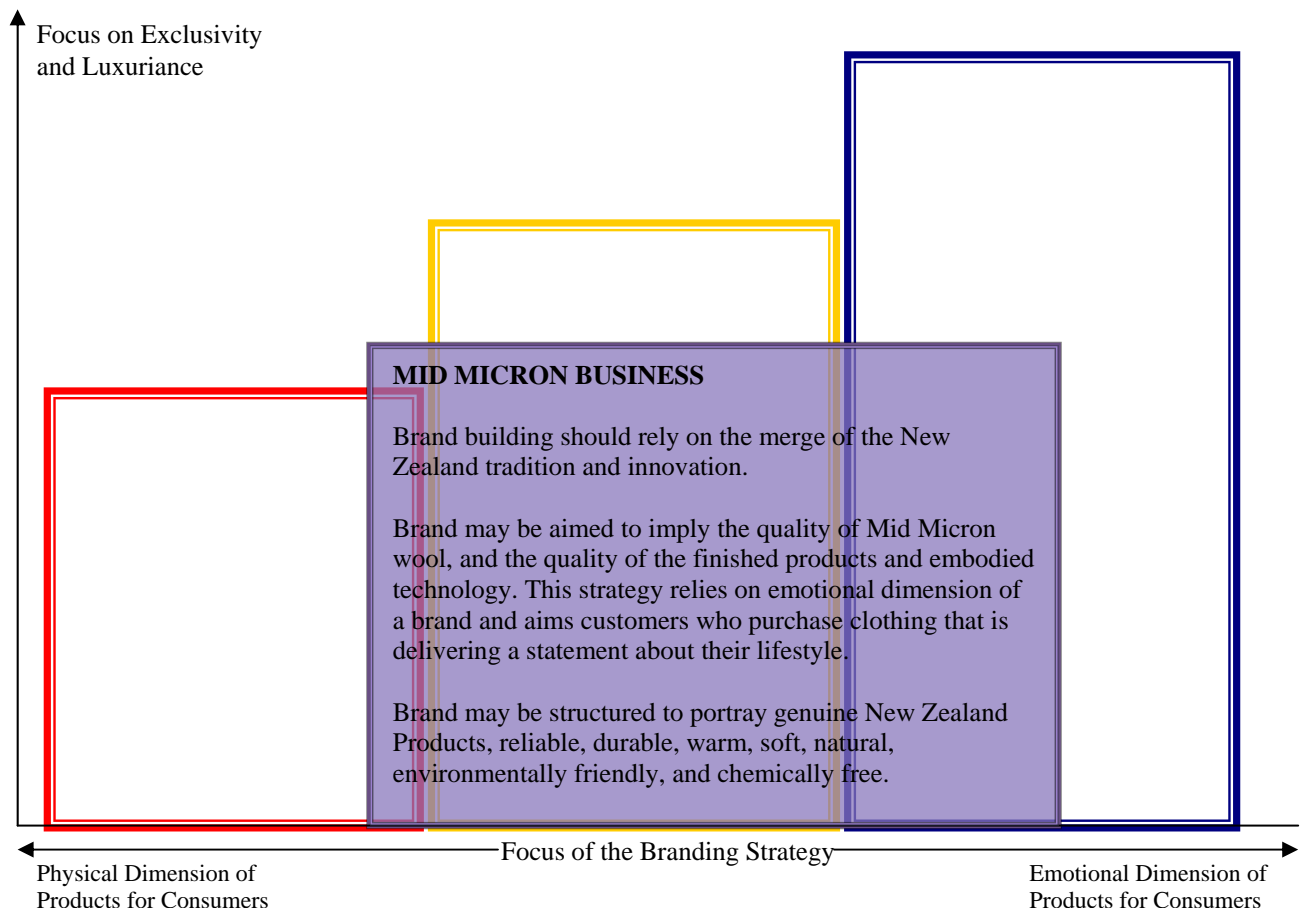
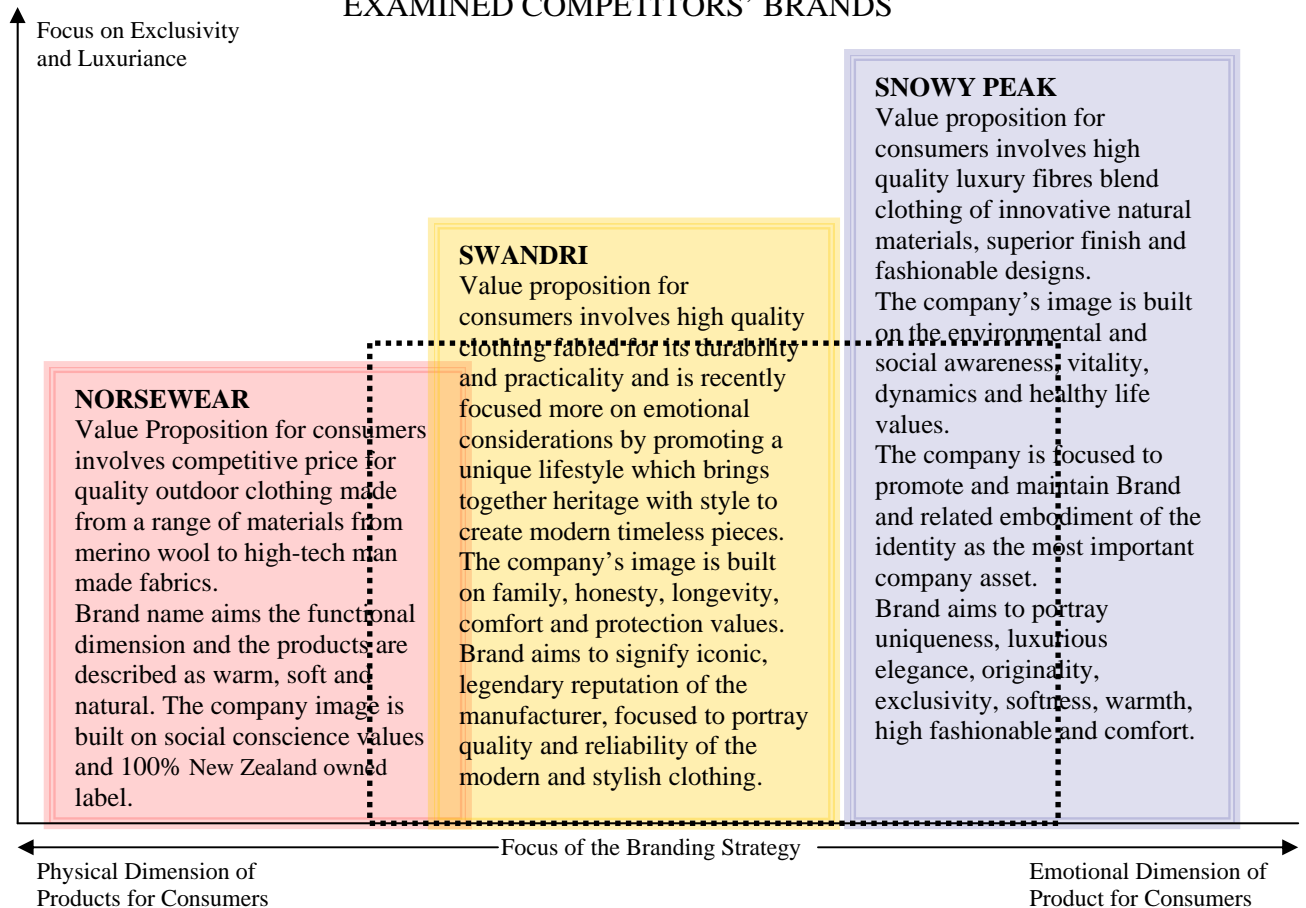
The finished products, as quality knitwear that embodies unique technology, can be used to portray the legacy of New Zealand innovation. For example, the message may communicate the science applied to create a new processing solution for Corriedale and to take this fibre to a new level. New enriched Corriedale could be promoted as a fibre with improved softness, excellent handle and technical performances resulting in warm and soft, durable, reliable, and easy care knitwear.

Besides meeting the expectations with regard to the message the brand embodies, it is also important to meet expectations associated with regard to the targeted market segment. Product Leaders typically aim at the up market segment where the customers are interested in choice rather than cost. For the Mid Micron Business, offering choice implies the need to invest in further product development, innovation and market exploitation. In order to avoid the products being labelled as substitutes, it may be critical to provide choice by developing distinctive product designs.

In order to provide a choice, it may be necessary to engage designers and their inventive and professional skills to develop product lines, to provide a steady stream of new Mid Micron products, and to assure continuous improvement of the offer. In this early stage of the Mid Micron Business, an option is to engage young and creative textile designers, for example students from the Design and Art College of New Zealand, and give them an opportunity to create new Mid Micron product lines. This method is consistent with the brand image of true and original New Zealand product which portrays the legacy of New Zealand innovation. The result may not only be a large portfolio with ideas from young and creative people that are familiar with fashion trends, but may also provide a choice of different routes along which product lines can be developed.

Choosing the appropriate design may be the result of prioritizing opportunities and identifying the best option for new Mid Micron features, and identifying gaps in the market. Incentives for student designers to be involved could be the valuable experience, the chance of attaching their name to a product line, associated royalties, or potential long term employment.

FIGURE 5.6
POSITIONING NEW MID MICRON BRAND WITH REGARD TO
EXAMINED COMPETITORS' BRANDS



5.5.3 PRICE OF MID MICRON PRODUCTS IN THE PRODUCT LEADERSHIP MODEL

Differentiating the value proposition under the Product Leadership model typically requires high investment and therefore represents a costly business route. This is expected to apply to the new Mid Micron Business as well, as there would be the extra costs incurred in creating the new brand, such as promotion and advertising costs, and costs associated with designing the product line. Consequently, setting the premium price, associated with the Product Leadership model, should cover all the additional Mid Micron costs.

Considering the new Mid Micron products, an indication of the potential price range would be the price range associated with medium fine Merino products. Having no discount policy and taking into account the price set up for more expensive products at Norsewear and Swandri, this would be between \$150.00 and \$180.00.

By adopting Product Leadership principles, the Mid Micron value proposition will be structured around providing a clear reason to choose Mid Micron products instead of competitors' products. Although this implies focusing upon the product and its tangible and intangible values for consumers, a cost position is not to be ignored. The answer is to cut costs in all areas that do not affect differentiation. This specifically applies to product range development, as Product Leaders can not accept product standardization or limit its range of products as proposed under Operational Excellence.

As part of the Product Leadership strategy, reducing costs has a role to additionally strengthen the company's competitive position, as rivals would have to find a way to match, not only the differentiation advantage, but also the cost advantage. Applying the objective means that most of the ways of cost cutting, proposed in the Mid Micron Operational Excellence model, would be applied in the Mid Micron Product Leadership model as well. They involve: product development, to reduce the raw material costs without affecting product performance and uniqueness; and structuring a customer focused, cost effective and highly efficient value chain to increase net returns to woolgrowers and the chain. In the Product Leadership model, the main risk is if the premium price is perceived as too high which would discourage purchases.

5.5.4 DELIVERY IN THE PRODUCT LEADERSHIP MODEL

For the purpose of this research, the final element of the Mid Micron Product Leadership value proposition model is the way in which the products are delivered to market. Some of the aspects of this element are examined in Section 5.2.3, on focusing on new market segments and reconfiguring the value chain.

The marketing initiative of focusing on new market segments via E-Commerce, discussed in Section 5.2.3.1, may result in significant opportunities within the Product Leadership business route. These are already examined as part of the Mid Micron Operational Excellence model in Section 5.4.4, and involve: direct and convenient contact with customers to make it easier to respond to their needs, cost reduction through structuring a shorter value chain and low investing, better communication and faster information flow, reaching a wide target market and being competitive with Web enabled businesses.

However, building E-Commerce as an exclusive marketing channel in the Product Leadership model requires the recognition of certain risks. Firstly, the Mid Micron Business needs to consider that competitors in this up-market segment level use E-commerce as an additional sale format to supplement traditional retail stores. Having E-Commerce as a sole channel to communicate with the market may translate in portraying below-standard image when compared with competitors at this level.

Secondly, in the Mid Micron Product Leadership proposition, E-Commerce may be seen as inadequate as customers would be required to pay a premium price for products which they would have no physical access to, preventing them from gaining 'real' knowledge of the products. Another issue relates to the lack of personal service in terms of human interaction that may decrease the customers' total experience relating to the purchasing process. Also, there is a concern over whether E-Commerce will be perceived in accordance with the promoted image of exclusivity, originality, and luxury. This may be a problem when facing a strong competition at this level with established brand identity and customer loyalty.

The second marketing initiative of reconfiguring the value chain as discussed in Section 5.2.3.2 will have significant implications within the Product Leadership model. With regard to relationship dynamics in the reconfigured chain, the critical factor is the exclusivity of the partnership with the spinner who holds the technology. This exclusivity will assure the rarity needed to support differentiation advantages. With regard to leadership structure, positioning Woolgrowers Marketing Limited as a key driver in the new chain implies that Woolgrowers Marketing Limited should be focused on increasing profitability through increasing the perceived value for customers. This may lead towards constructing a more decentralized integration structure and flexible operating model, in which, each chain member acts and responds to its actual needs to determine the most efficient and effective allocation of resources.

5.5.4.1 The Risk Of Using E-Commerce As An Exclusive Mid Micron Marketing Channel Within Product Leadership Model

Since the Product Leadership model suggests targeting the up market segment where customers are interested in choice and product image, the most significant issues associated with E-Commerce is whether it can portray the uniqueness, luxury, exclusivity, originality, and similar values, needed to be competitive in this market. Established competitors at this level, such as Swandri New Zealand Limited or Snowy Peak Limited, are using E-commerce as an additional sale format to supplement retail stores. If the Mid Micron Business is unable to follow their competitors' practice and open their own retail stores, they should consider the option of approaching retailers that represent aimed values associated with Product Leadership model for consumers. Ballantynes J and Co and Kathmandu Limited are companies that may be used as example of those retailers.

By way of example, Ballantynes J and Co is a retail chain store that offers a wide range of New Zealand and international best known fashion and homeware brands. The value proposition for consumers involves a wide product range, committed customer service and quality merchandise. Customer focus is most evidently seen through a professional sale force trained to maximise customer satisfaction. Ballantynes J and Co has shops at Christchurch, Timaru, and at Christchurch

International Airport, and offers a nationwide Mail Order service and web site operations (Ballantynes J and Co., 2007).

Ballantynes J and Co offers a selection of clothing for all age groups, from everyday classic essentials to business and special occasion wear for both men and women. If the Mid Micron Business achieves partnership with Ballantynes J and Co., the new Mid Micron products will be amongst a wide range of knitwear from well-known brands such as Possumdown, Royal Merino, R M Williams, Silverdale and Swandri, or designer labels including Caroline Moore Leather, Paula Ryan, Vamp, Dolce & Gabbana, Cutler and Diesel (Ballantynes J and Co., 2007).

Kathmandu Limited is another company that may be approached to portray aimed values within the Mid Micron Product Leadership value proposition for consumers. A well known company with 48 stores spread across Australia, New Zealand and the United Kingdom, Kathmandu provides quality outdoor clothing and equipment for travel and adventure. The story behind the brand aims at a specific lifestyle and portrays values about caring for the natural environment, and about people focused on honesty, integrity, vitality, creativity, humility, compassion, courage and responsibility for one's own actions (Kathmandu Limited, 2007). The clothing is manufactured from high performing and high quality man made and natural fabrics. Kathmandu is devoted to technical development and customer focus. The most relevant for the Mid Micron Business would be their use of Merino wool to create some of the most durable and long-lasting garments.

Due to the Kathmandu profile and commitment to design its own clothing and outdoor equipment, the partnership between Mid Micron Business and Kathmandu Limited would more likely be a supplier – buyer relationship. Mid Micron would be supplying the Mid Micron yarn for Kathmandu to use in their clothing manufacturing process.

Both Ballantynes J and Co. and Kathmandu Limited aim to serve the up market segment and to offer a wide range of products. They place emphasis on meeting the fast-moving changes in fashion, constantly improving proposition and increasing the value for consumers through product development, market research and innovation.

5.6 COMPARISON OF THE TWO MODELS

The previous sections presented two models, Operational Excellence and Product Leadership, as two different business routes for the new Mid Micron Business. However, the research proved that these two routes imply significantly different subsequent plans and decisions for the future of the Business. These are summarised in Table 5.4, together with the principles and ideas presented in previous sections.

TABLE 5.4

**COMPARISON OF THE OPERATIONAL EXCELLENCE
AND PRODUCT LEADERSHIP MODELS FOR THE MID MICRON BUSINESS**

	OPERATIONAL EXCELLENCE	PRODUCT LEADERSHIP
PHILOSOPHY Principle	The model is based on the principle of becoming a market leader by developing a cost advantage in the market.	The model is based on the principle of becoming a market leader by developing a differentiation advantage in the market.
Net returns to value chain	Net returns to Mid Micron woolgrowers and the Mid Micron value chain are planned through the volume of business, by offering quality product at a cheaper price.	Net returns to Mid Micron woolgrowers and the Mid Micron value chain are planned by setting up a premium price that would cover the production costs and additional costs incurred in creating differentiation, and assure a higher margin for the value chain.
VALUE PROPOSITION Definition	<p>Value proposition can be defined as offering ‘the best value for money’ i.e. new Mid Micron brand for quality knitwear with improved technical performances for a discounted price.</p> <p>Value proposition is focused on underlining a new brand that will exceed customer expectations through cost savings and product quality; products are presented as cheaper or equally priced alternatives to medium fine Merino knitwear and other second layer knitwear.</p>	<p>Value proposition is based around a new brand that represents a unique concept that takes wool to a new level and creates superior and technologically differentiated luxury fibre.</p> <p>Value proposition is focused on developing a strong brand identity which will increase the products’ perceived value in the market.</p>

<p>Sources to develop competitive advantage associated with the value proposition</p>	<p>Sources to develop cost advantage may be:</p> <ol style="list-style-type: none"> 1) The specific position of woolgrowers in the chain which may guarantee preferential access and long-term cheaper price contracts on Mid Micron wool as a raw material. This advantage can be further developed through additional product development to reduce the cost of raw materials; 2) Exclusive right to use technology template will assure rarity in the market, and competitors will not be able to use the same technology to copy the yarn structure for the same cost; 3) By reconfiguring the value chain, Mid Micron woolgrowers would control both ends of the chain. This structure may contribute to cost reduction by eliminating inefficiencies and establishing control over the production process and operations. 	<p>Sources to develop differentiation advantage may be:</p> <ol style="list-style-type: none"> 1) Use of new technology to develop a completely new yarn structure that when used in knitting produces a new knitwear type; 2) Differentiating value chain due to the specific position woolgrowers have in the chain, and due to the exclusive relationship with the spinner who holds the technology; 3) Developing a strong brand, distinctive product line, and focused marketing efforts; 4) Penetrating the market under a high capital investment strategy with regard to promotion and advertising.
<p>Risks related to developing aimed competitive advantage</p>	<p>Risk related to developing cost advantage is associated with whether the cheaper raw material, i.e. Mid Micron wool, assures sustainable net returns for woolgrowers.</p>	<p>Risk related to developing differentiation advantage are:</p> <ol style="list-style-type: none"> 1) Customers may not recognize the novelty of the developed yarn structure unless the concept is explained, visible and promoted; 2) Spinner who holds the technology has a dominant role for the success of the overall project which gives him 'make or break' power; 3) Success may rely on high investment into extensive market research to determine gaps in the market and finding out where newly developed wool yarn maximises value for consumers; and investment into creating new and distinctive knitwear designs and recognizable product image.

Value proposition element - PRICE	<p>The key for increasing the new Mid Micron products' value for consumers is through a discounted price when compared with Merino products and other second layer knitwear of equivalent skin comfort, or same or discounted price when compared with other second layer knitwear of substandard skin comfort.</p> <p>Price is in the range \$70.00 - \$140.00</p>	<p>Premium price is charged for developed brand and image differentiation.</p> <p>Price is in the range \$90.00-\$180.00</p>
Risk related to pricing strategy	<p>Risks related to discounted pricing strategy are related to:</p> <ol style="list-style-type: none"> 1) The consumer's declining sensitivity to price, and loss of this dominant competitive force; 2) Competitors starting a 'price war' as a tactic to maintain their market share, that can erase Mid Micron advantage, leaving customers as the only winners; 3) Price being seen as an indication of quality. 	<p>Risk related to premium pricing strategy is if buyers perceive the price being too high and decide not to purchase the product</p>
Value proposition element - PRODUCT	<p>New Mid Micron product can be defined as good quality knitwear with excellent handle and equivalent feel to medium fine Merino knitwear. Besides featuring all the inherent positives of wool, the new products have improved technical characteristics due to the new yarn structure.</p> <p>It is important to develop a standardised range of Mid Micron knitwear that may result in reliable and continual market demand.</p> <p>Opportunity is to present an approximately 20% cheaper option to comparable second layer knitwear and build an image of: 'same value for less money' (just as good products for lower price) or 'more value for same or less money' (better products for same or lower price).</p>	<p>Mid Micron product can be defined as unique knitwear with brand differentiation being the central point of difference. The brand underlines emotional values for consumers, who purchase clothing that is somehow different, rare or exclusive, and that delivers a statement about their lifestyle.</p> <p>It is critically important to increase the products' perceived value and provide choice by developing distinctive product designs.</p> <p>Opportunity is to build a story shaped around two aspects: quality of Mid Micron wool, and the quality of the finished products and embodied technology. Option is to present "genuine New Zealand product, natural, environmentally friendly, chemically free".</p>

Risk related to branding strategy	Although the stress in the Operational Excellence model is on price and the functional dimension, and in the Product Leadership model on emotional meaning for consumers, creating the Mid Micron brand may become critical for the future of business, no matter which model it pursues. The difference will be the size of the investment put into brand building, and the promotion and advertising of that brand.	
	The need for limited promotional expenses and reduced marketing overheads may result in low reach of customers and consequent poor acceptance of the new products.	The need for high investment into promotion needed to launch and maintain the brand as a prime measure of product value, may result in big loss of capital if consumers do not accept new products as added or unique value. Most importantly, further high investing in product promotion and advertising is needed to maintain the brand as a dominant company asset.
Value proposition element - DISTRIBUTION	Distribution is aimed at the volume market, that carries no major unknowns and where the demand is big and competition is strong. Typically, customers are more interested in cost than in choice.	Distribution is aimed at the up market segment where demand dictates a need for fast reaction time, creativity and innovation to keep up with fast changing fashion trends and competitors' moves. Typically, customers are interested in choice and product image.
Risk related to distribution format and targeted market	<p>Risk related to the nature of the volume market is if this segment does not actually have any real unsatisfied need. Also there is a risk of not reaching the sufficient number of customers.</p> <p>Possibility is to approach retailers that have a well developed distribution network and can reach a wide market, for example: Farmers Trading Company; Postie Plus Group Limited.</p>	<p>With regard to target market, the risk is related to competing with already established strong players with their brand identity and customer loyalty built. Further there is a risk if the branding and promotion fail to portray the values which are critical to compete with competitors at this level.</p> <p>Possibility is to approach retailers that portray exclusivity, originality, and rareness, for example: Ballantynes J and Co., Kathmandu Limited.</p>
	Some of the distribution aspects are discussed as part of new marketing initiatives, Focusing On New Market Segments via E-Commerce and Reconfiguring The Value Chain. These initiatives may address some of the problems associated with the Mid Micron Sector, such as: long and complex structure of the value chain, lack of customer focus, inefficient communication, and unfocused marketing efforts.	

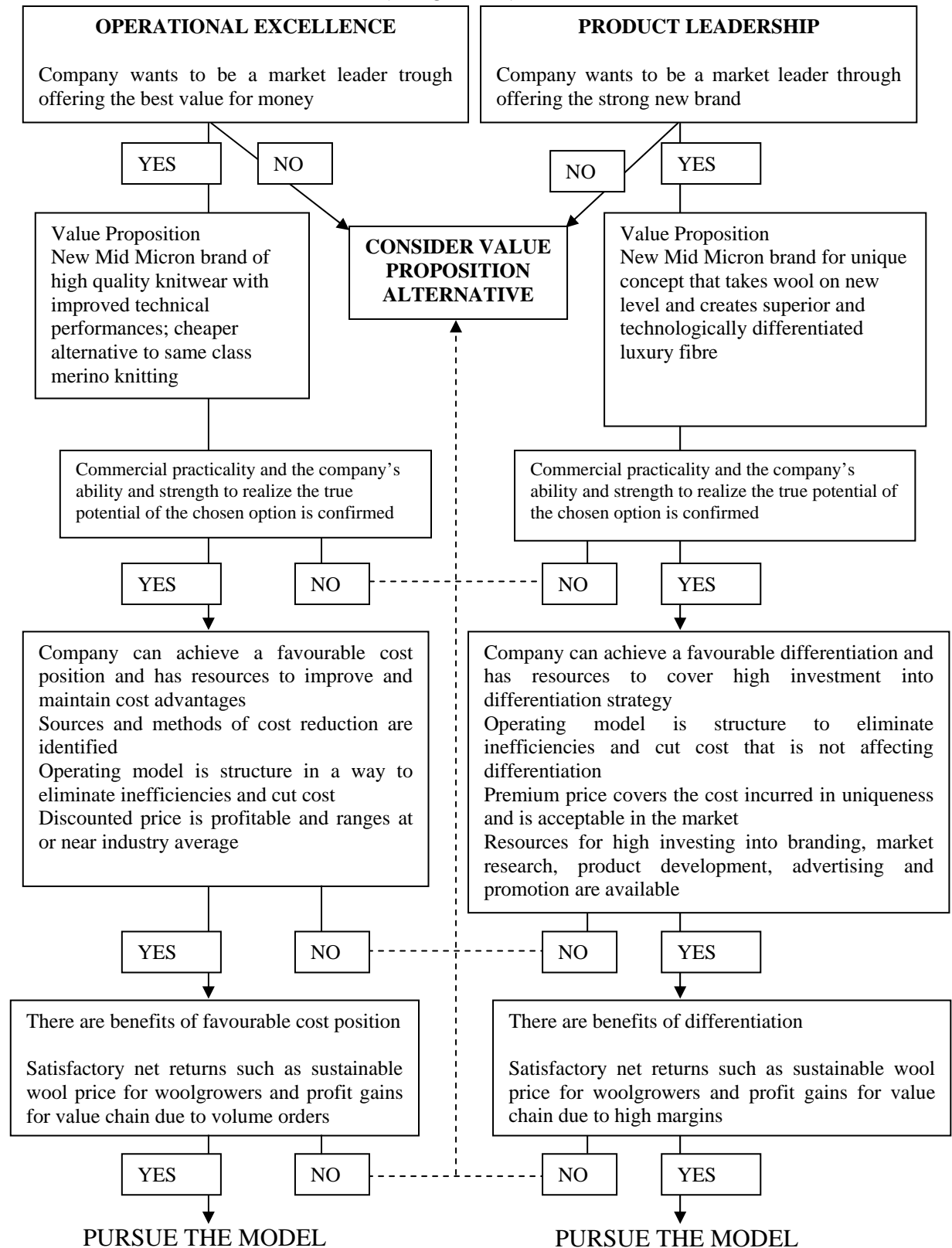
Focusing On New Market Segments Via E-Commerce	<p>E-Commerce as a direct marketing channel represents an opportunity to shorten the Mid Micron value chain and return a larger share of the final product's value to Mid Micron woolgrowers. E-Commerce could also represent an effective channel to build a new customer base and rebuild the use of Mid Micron wool in the traditional market segments. It provides direct communication with the final consumer, fast information sharing and more collaborative communication on all business levels, and control over materials, products, costs and profits. The principle benefit is that E-Commerce provides an opportunity to reduce the costs of conducting business and penetrate the market under a low capital investment strategy.</p>	
	<p>The principle concern with having E-Commerce as a sole marketing channel is whether this is sufficient to reach the sought-after market share.</p>	<p>The principle concern with having E-Commerce as a sole marketing channel is associated with portraying below-standard image when compared with competitors at this level. Customers may be reluctant to pay premium price for products they have no physical access to gain 'real' knowledge about, and the lack of personal service in terms of human interaction may decrease the customers' total experience values.</p>
Supply Chain Reconfiguration	<p>Reconfiguration of the Mid Micron supply chain would not significantly differ with the alternative value proposition models. Reconfiguring the value chain represents an opportunity to develop business critical core competencies through integration with channel partners. By structuring strong and committed partnerships, the extra value that used to be created outside the Mid Micron chain, could now be created by chain partners, and costs associated with the auction system could be eliminated. Being customer focused, thus maximising value for consumers, would be necessary at all levels in the chain. Efficient communication, coordination and management would ensure that the chain participants are better linked in the process of value creation for the final consumers and that the chain reaches its full potential. New structure may assure that the overall control in the chain is assumed by Mid Micron woolgrowers, positioned at both ends of the chain.</p> <p>If the Mid Micron Business follows the Operational Excellence, there is still a need to differentiate its offer in order to strengthen the cost competitive advantage. If the Mid Micron Business commits to the Product Leadership model, there is still a need to minimize costs in order to strengthen the competitive advantage of differentiation.</p>	

The comparison of the models suggests that both models could be successful routes for capturing the value from the newly developed Mid Micron products. It is a matter of choosing one route and undertaking a focused effort to maximize its opportunities.

Figure 5.7, Decision Flow diagram, may provide a guide on how to determine the best suited option for the Mid Micron Business, although the use of this, or a similar method, would require more detailed business forecast and financial calculation. The first step of choosing the business route should be fixing on one philosophy and value discipline that best suit the company's goals and vision. Next, it is important to examine company's (or chain's) core competencies, knowledge, available resources, and willingness and commitment to build an operating structure, needed to follow the chosen model and achieve sustainable competitive advantage for Mid Micron wool.

FIGURE 5.7

DECISION FLOW DIAGRAM FOR DIRECTING VALUE PROPOSITION DEVELOPMENT



6 CONCLUSION

6.1 SUMMARY AND DISCUSSION

The research for this thesis was motivated by the fall in demand for Mid Micron wool in the textile market, which has reduced the opportunity for Mid Micron woolgrowers to adequately reward their efforts. Two issues are thought to have caused this negative market response to Mid Micron wool. They are the substandard skin comfort of final products made from Mid Micron wool, and a problem with the structure of the Mid Micron Sector.

The substandard skin comfort of the Mid Micron products is the result of the handle and prickle properties associated with the Mid Micron fibre diameter. This simply means that the Mid Micron products may irritate the skin and feel rougher and pricklier than products made from medium fine Merino, man made fibres or a blend of the two. The problem with the structure of the Mid Micron Sector is associated with a long and complex supply chain, a lack of customer focus, inefficient communication, and unfocused marketing efforts.

Mid Micron woolgrowers have faced up to the responsibility of trying to improve the returns from their product and to meet more demanding customer needs through innovation and research into wool processing. They have commenced a project that combines product development and new marketing initiatives aimed at re-establishing the demand for Mid Micron wool.

The Mid Micron product development was based on the exploitation of a new creative technology solution designed by a private company, NuYarn Corporation Limited. NuYarn's technology is secret intellectual property that resulted in technologically differentiated Mid Micron yarn that has improved aesthetics, and when used in knitting, reduces the prickliness of a fabric of a given micron. Thus, with correct engineering, it is possible to create a new Mid Micron product that displays improved handle and has uncompromised mechanical performances.

The technology has been used to produce Mid Micron products with a skin comfort similar to products made from medium fine Merino wool. This, in turn, has motivated new marketing initiatives to rethink and redirect future business and to support the newly developed products. The research for this thesis examined new Mid Micron marketing initiatives of focusing on new market segments and reconfiguring the value chain.

With respect to new market segments, E-Commerce as a direct marketing channel represents an opportunity to shorten the Mid Micron value chain and return a larger share of the final product's value to Mid Micron woolgrowers. E-Commerce could also represent an effective channel to build a new customer base and rebuild the use of Mid Micron wool in the traditional market segments. Reconfiguring the value chain represents an opportunity to develop business critical core competencies through integration with channel partners. By structuring strong and committed partnerships, the extra value that used to be created outside the Mid Micron chain, could now be created by chain partners, and costs associated with the auction system could be eliminated. Being customer focussed and so maximise value for consumers, would be necessary at all levels in the chain. Efficient communication, coordination and management would ensure that the chain reaches its full potential; and overall control in the chain could be assumed by Mid Micron woolgrowers who would be positioned at both ends of the chain.

The product development and marketing initiatives can result in new value for consumers that can be tied together in a complete value proposition. The value proposition for consumers was defined as combination of values to meet customer needs and wants, and maximise customer satisfaction. The thesis examined different value proposition options as alternative business routes and provided an analytical framework which could be used to identify the sources of value, potential investment required, and the risks associated with each option.

The research identified potential Mid Micron value proposition options to be the Operational Excellence and the associated Cost Leadership strategy, and Product Leadership and the associated Differentiation strategy. These were analysed and

compared through their elements, namely product, price and delivery to market, as they relate to the Mid Micron Business.

The Operational Excellence and Cost Leadership strategy represents the 'Best Total Cost' option and typically targets the middle of the market where the demand is big and customers are interested in cost, rather than choice. Although the model relies on providing the best combination of price, reliability and convenience for consumers, the key principle is to offer the best value for money. The research identified an opportunity to launch the new Mid Micron Jumpers as an approximately 20% cheaper alternative, in the price range of \$70.00 to \$140.00, to comparable knitwear in the market. The focus of promotion proposed for this option, was to introduce a new brand that would exceed customer expectations through cost savings and product quality. For example, this principle may be built-in through the messages: 'same value for less money' (just as good products for lower price) or 'more value for same or less money' (better products for same or lower price).

The Product Leadership and Differentiation strategy represents the 'Best Product' option and is typically focused on continually redefining superior value for consumers. The research identified an opportunity to differentiate the new Mid Micron Jumpers along emotional considerations for consumers to increase their perceived value in the market. Under this strategy, this is likely to become a dominant company asset and a dominant reason for consumers to prefer Mid Micron products over competitors' products. An option is to develop a new Mid Micron brand by focusing on the quality of Mid Micron wool, and the quality of the finished products and embodied technology. The focus of proposed promotion was a story about 'genuine New Zealand product, innovative scientific solution, natural, environmentally friendly, and chemically free'.

Operational Excellence may be a successful route for the Mid Micron Business especially when it is noted that the fashion look of today is not exclusive anywhere, due to global influences on fashion, and the prompt and effective global communication of fashion information. Within the Operational Excellence option, this may allow the Mid Micron Business to target customers who are 'brand-tired' and driven by the principle of value for money. These customers are most likely to

recognize maximized benefits when offered a quality Mid Micron product at a lower or middle price.

However, these same global influences and immediacy in communication may also benefit the Product Leadership option and the value proposition of a unique and different Mid Micron brand. Within the Product Leadership option, this may allow the Mid Micron Business to target customers who want to avoid uniformed clothing and are value driven, regardless of whether this value is real or perceived. They are most likely to recognize maximized benefits when offered an original and exclusive Mid Micron product that delivers a statement about their lifestyle and personality.

It can be concluded that there are two most relevant differences between the two options. They are: what is primarily offered to consumers, ‘best price’ or ‘best brand’, and what is the capital investment strategy used to penetrate the market and build and maintain the business.

In order to decide what option might maximize Mid Micron market opportunities, it is important to evaluate whether considerations by the Mid Micron Business on “what we want to do” and “what we can do” complement each other now and in the future. In the early stage of the Mid Micron Business development, Operational Excellence might appear as easier, cheaper and possibly better suited business route for the Mid Micron Business. This can be attributed to the nature of the “New Mid Micron Products” project, to developed characteristics of the initial Mid Micron Jumpers and to limited resources for building an operating model and supporting a business strategy. In contrast to the situation observed in the early stage of the Mid Micron Business development, the Product Leadership model could possibly be seen as a more profitable business route in the future of the Mid Micron Business. This is because, in spite of requiring additional costs and time, once the Product Leader’s brand is launched, it represents a long term embodiment of all the information, promises, and expectations linked to the company and its products.

Hence, it is not solution to follow Operational Excellence just because resources and financial means are limited and are unable to support the Product Leadership route at present. At the same time, it is not the solution to chose Product Leadership just

because it is consistent with aspired vision of the business, if there is no realistic expectation that resources and capabilities required by this model will be developed in the future.

The research did not conclude which option gives better value proposition for the Mid Micron Business. Instead, it implied that Mid Micron Management has to carefully evaluate the commercial practicality and the company's ability and strength to realize the true potential of the chosen option. It is fundamental for the Mid Micron Business to choose one business route and make a dedicated effort to maximize its opportunities and pursue the model's principles in order to achieve success. Regardless of the chosen option, it will be possible to use the new Mid Micron Jumpers to evaluate if they fit with customer needs and with the new Mid Micron value chain, to test the NuYarn technical template, and to create business contacts and partnerships.

6.2 LIMITATIONS FOR THIS RESEARCH AND RECOMMENDATION FOR FUTURE RESEARCH

Although the objective of this thesis was to examine the value proposition options for new Mid Micron products in general, the research was focused to consider on the value proposition options with regard to a specific product, i.e. Mid Micron Fisherman's Rib Jumper. This specific product and product characteristics are used for the comparison with competitors' product, and have directed discussion about potential risks and opportunities. Because of working with limited information more detailed research would be necessary to refine findings of this research. This future research may involve examining different type of Mid Micron product which may consequently open different option to develop a value proposition for consumers. However, the method developed for the purpose of this research may be used in the future.

One of the potential options to develop a different value proposition for consumers may be the Customer Intimacy option. The Customer Intimacy model is not considered in this thesis, because of the nature of the "New Mid Micron Products" project and because of the conventional type of initial products, which are inconsistent with the principles of Customer Intimacy. However, it may be an option for the Mid

Micron Business to focus on a specific, narrow market segment by developing a customized Mid Micron product to fit specific customer needs. This would result in potential to develop Customer Intimacy, and the associated Focus strategy, and would require further market research to find an adequate ‘market gap’ with an unsatisfied customer needs or with an underserved customer needs.

It is also recommended that the Mid Micron supply chain reconfiguration initiative would require further study. Research could be focused on: how to structure and manage a new chain, primarily with regard to bypassing the auction system, improving the efficiency in the chain, adopting Just-In-Time inventory management, and how to develop constructive leadership in the chain, primarily with regard to the leader’s roles and responsibilities to manage critical relationships and develop a distribution network and marketing skills.

6.3 CONTRIBUTION OF THE THESIS

Although Mid Micron wool could probably be utilized in the Chinese market or in carpet production, woolgrowers realized they would have to accept little or no price premium over the price for strong crossbred wool. Doing nothing to improve the position of their wool product, would mean that they would have to rely even more on meat production on their farms and accept the place of wool as a by product.

By using their own levy, Mid Micron woolgrowers decided to initiate a project to create, fund, manage, and control their own new product and future. As part of this project, the research for this thesis may help determine how to capitalise on the opportunities for the newly developed Mid Micron products in the marketplace and identify which value proposition is the best match with the strengths of the Mid Micron Business. This means that the thesis may have a practical use for the Woolgrowers Marketing Limited Company, and subsequently, for Mid Micron woolgrowers.

The findings of this research may also be applied in other industries. In particular, other clothing manufacturers might benefit. Like Mid Micron woolgrowers, many clothing manufacturers are currently facing drastic changes in the global apparel market that have affected buying processes and consumer behaviour and attitudes.

Their survival relies on the ability to promptly meet the constantly changing demands of the textile buyer and industry, and on the willingness to restructure operating models. The “New Mid Micron Products” project brought together willingness and commitment to embrace customer focused thinking, to adopt a scientific approach in product development, and to undertake new marketing initiatives, and as such, may be used as guidance for other businesses in similar position.

The common problem farmers’ groups face today is the lack of knowledge of how to exploit newly developed product in the marketplace. The research for this thesis links product development with the marketplace, and gives a systematic framework how to capture developed value.

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